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TEXAS STATE JOURNAL OF MEDICINE

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CONTENTS

	Page
EDITORIALS	
American Medical Association Dues Policies Clarified	65
Western States Medical Conference	66
Voluntary Insurance Challenges	67
"Never, Never, Never"	69
"Open Your Heart"	69
Current Editorial Comment	
Coronary Disease in Physicians	70
ORIGINAL ARTICLES	
Recognition of Cardiovascular Emergencies — *Archie Y. Eagles*	71
Modern Management of Congestive Heart Failure; With Especial Reference to Edema — *George R. Herrmann, John W. Chriss, Milton R. Heitmancik, and Paul M. Sims*	75
Veratrum Viride (Bioassayed) in Treatment of Essential Hypertension — *Arthur Ruskin and J. Alfred Rider*	80
Recent Advances in Communicable Disease Control — *Gaylord W. Anderson*	84
Mumps: Recent Advances in Diagnosis and Control — *Elias Strauss*	88
Chronic Respiratory Diseases in Infants and Children; Value of Roentgen-Ray Therapy — *W. Price Killingsworth and Fred Y. Kuhlman*	92
Roentgen Ray in the Diagnosis of Otolaryngologic Problems — *Charles I. Johnson*	97
Sinusitis in Children — *Douglas F. Barkley*	107
Surgical Treatment of Lacrimal Drainage System — *Everett R. Veirs*	111
Surgery of the Eye in Children — *Ruby K. Daniel*	113
CASE REPORTS	
Congenital Atresia of Posterior Nares — *J. Charles Dickson*	115
NEWS	
Coming Meetings and Clinics	118
Dallas Southern Clinical Society	119
American Goiter Association	120
New Orleans Medical Assembly	120
Medical Board Examination	121
LIBRARY SECTION	
Package Service	122
Library Needs	122
Motion Picture Film Library	123
Book Notices	124
ORGANIZATION SECTION	
American Medical Association	
Coordination Committee on Legislation	127
Washington Office to Move March 1	127
State Medical Association	
Executive Council Holds Winter Meeting	127
Dr. J. R. McGee Presented General Practitioner's Award	128
Related Organizations to Meet at Annual Session	129
Reports of Officers and Committees Due	129
County Societies	129
AUXILIARY SECTION	
Auxiliary News	133
DEATHS	134

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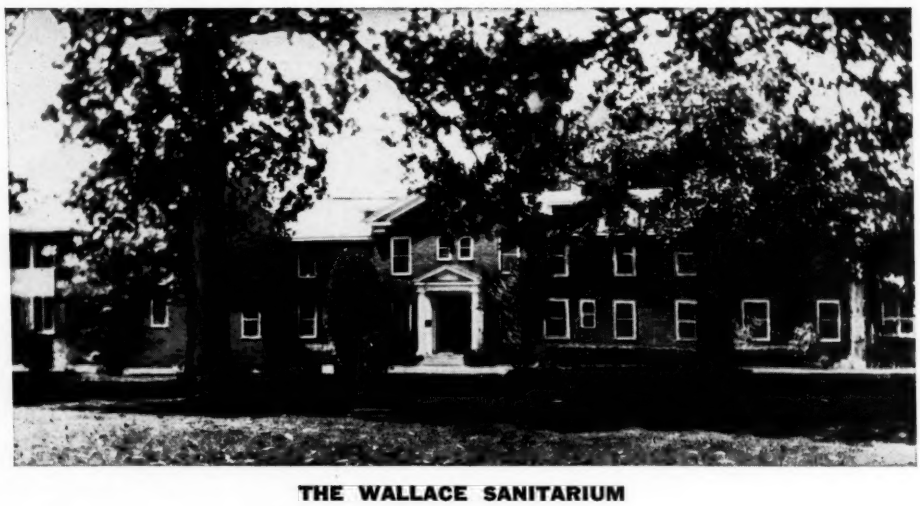

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AMERICAN MEDICAL ASSOCIATION DUES POLICIES CLARIFIED

A number of the questions which arose when it was first announced that the House of Delegates of the American Medical Association had authorized the collection of $25 annual dues for membership in the A.M.A have now been answered. Furthermore, the attitude of leaders of the State Medical Association of Texas toward the dues, which was hardly in question, has been affirmed.

It will be recalled that the House of Delegates, meeting early in December in Washington, D. C., realized that the program of the American Medical Association needs continuous and sufficient financial backing and that the most practicable method of supplying such backing is the collection of dues from the organization's membership. Amendments to the By-Laws authorizing dues up to $25 annually were therefore adopted by the House, and the Board of Trustees acted promptly to set the dues for 1950 at $25 for "each active member." Any member who is delinquent in the payment of dues for one year will forfeit his membership if he fails to pay the dues within thirty days after notice of his delinquency has been mailed by the Secretary of the American Medical Association to his last known address. Any former member who has so forfeited his membership may be reinstated on payment of his indebtedness.

Communications from the Secretary, Dr. George F. Lull, indicate that the following classifications of members may be exempted from payment of the American Medical Association dues: "retired members; members who are physically disabled; interns, and those members for whom the payment of such dues would constitute a financial hardship. No member should be exempted from the payment of his American Medical Association dues who is not exempted from his component and constituent society dues." Translated into the language used in the Constitution and By-Laws of the State Medical Association of Texas, those exemptions might be said to cover emeritus, honorary, intern and resident, and military members.

Following the suggestion of the A.M.A. that these dues be collected in the same manner as state dues, collection has been assigned to the

secretaries of county medical societies, who are to send the dues to the Secretary of the State Medical Association; he in turn will forward the dues to the Secretary of the American Medical Association and will keep the A.M.A. informed as to the active, dues-paying members of the State Association so that delinquency in payment of the national dues can be ascertained. Active members of the American Medical Association will receive a membership card and certificate of membership.

Eligibility for fellowship in the American Medical Association and fellowship dues of $12 remain unchanged. Requirements for membership in the A.M.A. (the degree of doctor of medicine or bachelor of medicine and membership in a constituent association) also remain unchanged with the exception of the dues provision.

Failure to pay American Medical Association dues at present has no effect on membership status in either county or state medical societies. However, it is anticipated that some county and state groups will take action to amend their constitutions and by-laws so as to make mandatory the payment of A.M.A. dues to retain active membership in county and state societies.

The Board of Trustees of the State Medical Association, recognizing that regular payment of dues to the American Medical Association is the best method of assuring adequate funds to carry on the national educational program aimed at preserving the private practice of medicine and remembering that Texas delegates to the American Medical Association actively supported the measure establishing such dues, introduced before the Executive Council at its meeting January 22 in Austin a resolution on the subject. The resolution recommends that component county societies provide in their by-laws that "the dues of each society [shall] include the $25 dues to the American Medical Association in addition to the dues now provided and collected by the said component county societies of the State Medical Association of Texas." This resolution, which is to be presented for action by the House of Delegates when it meets in Fort Worth in May, was approved by the Executive Council, and copies have been sent to the secretary of each county medical society. There seemed to be no dissenting voice when the Executive Council thus went on record in favor of the orderly collection of the American Medical Association dues.

Checks to cover dues for 1950 which have been received by the Secretary of the State Medical Association in some instances have included the $25 per active member for the American Medical Association and in some instances have not. The A.M.A. dues are being noted in the records of the state office and then are being forwarded to Dr. Lull. It is hoped that county societies which have not done so will encourage their members to pay the A.M.A. dues and will forward those dues promptly to the State Secretary.

County societies should also make a point of considering the resolution which is to be presented to the House of Delegates in May so that their delegates will be able to reflect the consensus of their local group when they are called on to take action. Surely the doctors of Texas will want to give solid support to the organization which nationally is helping to fight their battles — the American Medical Association.

WESTERN STATES MEDICAL CONFERENCE

During the second meeting of representatives of state medical associations west of the Mississippi River held in Denver on January 8 for the purpose of discussing some of the current national legislative matters affecting medicine, it was decided to form a permanent organization to be known as the Western States Medical Conference. Dr. Fred A. Humphrey of Fort Collins, Colo., president of the Colorado State Medical Society, and Dr. W. R. Brook-

sher of Fort Smith, Ark., secretary of the Arkansas Medical Society and editor of its *Journal,* were elected president and secretary respectively of the newly formed organization. Representatives of sixteen states west of the Mississippi and several invited guests from other states, including several American Medical Association officials, attended this conference, making a total of 73.

Several bills now before Congress, the passage of which would directly affect the practice of medicine in one phase or another, were discussed. Chief among these were H. R. 6000, the so-called Social Security Bill; S. 1411, the so-called National School Health Services Bill of 1949; S. 1453, the so-called Emergency Professional Health Training Bill of 1949; and several bills which would provide for federal subsidy of voluntary health insurance plans in various ways, including S. 1456, S. 1581, and S. 1970. Resolutions condemning each of these bills and pointing out the reasons why they should be defeated were passed by the conference.

The action taken by this first meeting of the Western States Medical Conference reflects the attitude of the State Medical Association of Texas concerning each of the legislative matters discussed. Leaders in this Association have been active in promoting this conference and they have participated in both the January conference and the preceding informal one held in Denver last July 31. It is the hope of the Western States Medical Conference and of some of the leaders of the State Medical Association of Texas that other similar conferences will be developed in various parts of the United States. These combined activities will aid materially the American Medical Association and other great national organizations which are striving to save not only American medicine, but also the American way of life—the private enterprise system of this country. It is hoped that every member of this Association will give his moral support and such participation as he is able to save the American people from socialism in all its hideous forms from the welfare state to frank Fabian socialism and communism.

VOLUNTARY INSURANCE CHALLENGES

The doctors of Texas have been challenged to help assure the efficacy of voluntary prepaid medical care insurance. Their answer may be significant to the whole problem of voluntary versus compulsory plans.

Group Hospital Service, the Blue Cross plan in Texas, represents one of the oldest, largest, and strongest movements toward budget financing of catastrophic illness. Nationally the Blue Cross plan and its newer counterpart to help pay medical and surgical costs, the Blue Shield plan, have snowballed to an enrollment of 36,000,000 in the hospital plan and 15,000,000 in the medical and surgical plan. They have been approved by the American Medical Association and many state and county medical organizations including the State Medical Association of Texas. Although numerous insurance companies operated for profit have introduced health policies which are finding favor among their clients, it is the nonprofit Blue Cross and Blue Shield plans developed by physicians and hospitals which show greatest promise for blanketing the nation with budget financing for health emergencies and thus for helping to silence the proponents for a government-operated, compulsory system.

One of the chief difficulties in any practical plan of sickness insurance is the establishment of a sound actuarial basis for premiums and benefits. After years of experimentation, Blue Cross is able to offer its prepaid hospital plan to groups, usually of employees in business or industrial concerns, knowing in advance the approximate percentage in the group who will require hospital care and what the premium must be to cover the costs of such hospitalization.

Fairly recently, Blue Cross has attempted to make its plan more inclusive by enrolling self-employed or individual persons under certain circumstances, especially in the smaller towns and rural areas where it is recognized that hospital and medical care coverage is of great importance. It is in this latter type of coverage that difficulties are arising.

In a recent letter to Dr. G. V. Brindley, Temple, President of the State Medical Association, Mr. W. R. McBee, Dallas, executive director of Group Hospital Service and Group Medical and Surgical Service, pointed out that Blue Cross, realizing the necessity of carrying voluntary sickness insurance plans to the smaller towns, has conducted several community-wide or county-wide enrollments in rural areas. Enlistment has been on the basis that all persons in groups of five or more could be enrolled through their place of employment and that for a limited time self-employed persons could be enrolled as individuals. Mr. McBee then explained what has happened:

"Some 25 of these community enrollments, comprising some 50,000 or 60,000 members, are causing us serious trouble because of excessive hospitalization. Our average annual admission ratio runs about 125 per 1,000. In some of these areas the admission ratio is as high as 350 per 1,000. This means, of course, that more than one out of every three persons goes to the hospital each year, and too, there appear to be far too many admissions and repeat admissions for minor illnesses in ordinary hospital cases.

"The cost of care for some 500,000 people enrolled through groups in the larger cities is around 80 per cent of the income. In these troublesome areas this cost often reaches and sometimes exceeds 200 per cent of the income. This year we will pay out in these areas at least $150,000 in excess of the income. Certainly we cannot penalize the majority of our members with higher rates because of the excessive utilization of the minority.

". . . Just now we are at a standstill on rural enrollments, refusing to carry this program further until the situation can be corrected. We have plans . . . to better acquaint the doctors and hospitals with our problems and seek their cooperation. If we don't get that cooperation immediately, we will have to cancel those groups."

Mr. McBee's letter was brought to the attention of the Board of Trustees of the State Medical Association, which in turn presented it to the Executive Council, meeting January 22 in Austin. It was the consensus of both the Trustees and the Executive Council that members of the State Medical Association should be notified of the difficulties facing Blue Cross and of the importance of cooperating to overcome those difficulties.

Certainly the first concern of the physician must be his patient, and the officials of Blue Cross in turning to the medical profession for help have no idea of suggesting that persons holding Blue Cross and Blue Shield contracts should be denied hospital and medical care which they need merely to balance the books of the health care plans. Nevertheless, it seems only too clear that in the areas mentioned by Mr. McBee, physicians may be over-zealous in advocating hospitalization for their patients, or, if not advocating, at least condoning it when such treatment is unnecessary.

Coverage of the individual, especially in rural communities, is one of the most vexing problems in sickness insurance. It is a problem which advocates of government medicine have been quick to say cannot be solved by voluntary, privately operated insurance plans. At the same time, it is a problem which must be solved if many citizens are to receive adequate medical care paid for at a time when the financial burden will not be too formidable for them.

Each Texas physician can and should help to make voluntary sickness insurance work by encouraging his patients and friends to purchase prepaid sickness insurance through Blue Cross, Blue Shield, or some other recognized agency and by doing his part to eliminate the abuse, either conscious or unconscious, of such plans. Only by the cooperation of insurance concerns, hospitals, patients, and physicians can voluntary sickness plans be an effective bulwark against compulsory schemes.

"NEVER, NEVER, NEVER"

In the January issue of the *Reader's Digest* appeared an article by Harold E. Stassen entitled "Never, Never, Never." It is one of the series of article he has written since his recent visit to Great Britain, during which he carefully studied the British National Health Program. A summation of this study might be stated in his words as follows: "More medical care of a lower quality for more people at higher cost." This is British socialized medicine.

The unusual title of this article is based on the statement of a Scottish doctor who said: "Now, week after week I waste hours making out forms and reports, attending committee meetings called over this, that and the other in the mere administration of the law, and in responding to patients' requests for service that is unnecessary. This interferes with my care of those who really need me. It has also largely stopped the development of the preventive side of my work. It has slowed the advance in my own professional information. Please tell our friends in America, never, never, never adopt such a program!"

The second in the series of Mr. Stassen's articles appeared in the February issue of the *Reader's Digest* and is entitled "Granny Is Gone." The third is scheduled for the March issue. Each of the two published articles gives an excellent picture of how the British socialized medicine scheme is working—its presumed benefits and its multitudinous disadvantages.

By this time every physician in the United States should have received from the American Medical Association fifteen reprints of both of the articles in the *Reader's Digest* referred to; however, these have been considered of such importance, particularly the one entitled "Never, Never, Never," that the Board of Trustees of this Association at its recent meeting in Austin recommended that physicians of Texas order additional copies of the reprints for inclusion in correspondence and distribution by various means. The reprints of "Never, Never, Never" may be obtained from the Reprint Editor, The Reader's Digest, Pleasantville, N. Y., at 3 cents a copy, $2.50 for 100 copies, or $10 for 500 copies.

It is hoped that this and the other articles by Mr. Stassen will receive wide distribution because of the forceful message they contain concerning the great mistake government may make by entering into the practice of medicine. The physicians of Texas should make it known to their patients that government operation of medical practice will bring a lower quality of medical care at a higher cost.

"OPEN YOUR HEART"

With the slogan "Open Your Heart—Give to Fight Heart Disease," the American Heart Association this year is conducting a campaign to raise $6,000,000 during February. These funds will be used for research, education, and community service in an effort to reduce the toll of heart disease, which in 1948 caused more than 600,000 deaths in the United States, a total greater than the toll exacted by the next five leading causes of death combined.

Physicians have every reason to be concerned with the Heart Association drive. Forty-one per cent of the 3,331 physicians whose obituaries were published in *The Journal of the American Medical Association* during 1949 died of heart disease.* The Current Editorial Comment published in adjacent columns of this JOURNAL emphasizes the danger to doctors of coronary occlusion alone. Furthermore, one of the most frequent conditions with which physicians are confronted in their patients is heart disease, and too often it is a condition for which adequate treatment is unknown. A major goal of the American Heart Association is to discover the still unknown causes of rheumatic fever, high blood pressure, and hardening of

**Obituaries of Physicians Published in 1949, J.A.M.A. 142:184-185 (Jan. 21) 1950.*

the arteries, which together account for 90 per cent of all damaged hearts. If the cause is known, preventive and therapeutic measures can be developed.

Each physician of Texas might well consider the long-range program of the American Heart Association as his own private war, the outcome of which may affect him personally and as a practitioner. The 1950 campaign for funds is an important battle which he can help to win.

CURRENT EDITORIAL COMMENT

CORONARY DISEASE IN PHYSICIANS

Of the 12,419 deaths of physicians in this country from 1938 to 1942, 7,442, or 59.1 per cent, were from cardiovascular disease, Dublin and Spiegelman[3] showed; coronary disease claimed 2,879, or 23.2 per cent. Later analyses yielded approximately similar percentages.[1, 2, 4]

The obituary columns of the TEXAS STATE JOURNAL OF MEDICINE reported 262 deaths in the three years 1946 to 1948, inclusive. The cause of death was not given in 36 cases; noncardiovascular causes accounted for 71, cardiovascular causes not coronary for 79, and coronary disease for 76 deaths. Thirty, or 39.5 per cent, of the physicians died of coronary disease between the ages of 39 and 60. What should interest us is not that so many physicians died of coronary disease, but that nearly 40 per cent of them died so young.

These figures present a situation of distressing loss and waste. Tens of thousands of dollars; from eight to twelve years of sacrifice, hard work, and study; and several more years of practice go into making the competent, modern physician. Then, in too many cases, at the height of his success, skill, and usefulness, he dies of coronary disease. While this is a great loss to his clientele, his profession, and his country, to his family it usually means a greatly lowered standard of living and, at times, actual financial distress.

There must be some explanation for this early degeneration of the coronary arteries. Although heredity may be a factor, the modern physician's mode of living undoubtedly plays an important role in the destructive process. Modern premedical and medical education, modern advances in medicine, and the recent advances and inventions in medical equipment, as well as the present state of society, have all tended to increase rather than decrease nervous and emotional strain on physicians. Two world wars, two depressions, and one New Deal with its radical economic changes and burdens—all within one generation — have intensified the strain.

Dr. Alex Hrdlicka, late curator of the Smithsonian Institution and a famous anthropologist, once told me: "When we violate the laws of Nature, Nature spanks." The human body and mind require adequate amounts of exercise, activity, recreation, rest, and sleep. That is Nature's law. Many modern physicians systematically violate this law by too much work, too much nervous and emotional strain, not enough rest and sleep, and inadequate recreation or "recreation" that does not re-create but further depletes their physical and mental faculties. Nature spanks, and she makes no exception of physicians. We must remember this and, if we do not wish to die prematurely of coronary disease, must adjust our lives accordingly.

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This department of the JOURNAL *presents editorial comments on current items pertaining to the science, art, and practice of medicine, contributed by members of the State Medical Association and scientists closely associated with the medical profession of Texas. Invitation is hereby extended to any member of the State Medical Association of Texas to submit such discussions for this department. The discussions should not be more than 500 words in length.*

ORIGINAL ARTICLES

RECOGNITION OF CARDIOVASCULAR EMERGENCIES

ARCHIE Y. EAGLES, M.D., Texarkana, Arkansas

WHEN a physician hears the familiar question, "Is there a doctor in the house?" he mentally prepares himself for the recognition and management of some type of emergency; frequently this is in the field of acute cardiovascular conditions. Cardiovascular emergencies are usually classified as (1) those dealing with a loss of consciousness; (2) those dealing with respiratory embarrassment; (3) those dealing with a change of cardiac rate and rhythm; and (4) those dealing with pains in and around the chest. The distinguishing features of only the more important syndromes of each of the classes will be presented in this paper. However, too often physicians forget some of the less common syndromes, and prompt recognition depends on the mental consideration of all of them.

LOSS OF CONSCIOUSNESS

Benign Syncope.—Under the heading of loss of consciousness the physician most often encounters benign syncope. It is usually readily recognized by the short duration, the pale and anxious face, feeble pulse—slow or fast, and the circumstances associated with the incident. Benign syncopes were seen frequently in the inoculation lines of service men, where a combination of mental anxiety, the needle prick, the sight of blood, or the long continued standing produced so-called "neurogenic shock" with its resultant splanchnic dilatation and drainage of the blood supply from the head. These episodes are not always associated with syncope but manifest the same type of vascular collapse without unconsciousness.

Cerebrovascular Accident.—In a patient past middle-age who has been unconscious for a comparatively long period, the most common cause is some type of cerebrovascular accident. If there is any evidence of trauma, subdural hematoma, concussion, and so forth have to be considered. Inequality of pupils, facial, ocular, or peripheral paralysis or paresthesia will help to localize the site of injury.

Most commonly, in the nontraumatic cases, the physician receives a story of sudden severe headache, of falling, of signs of paralysis of one side of the body, and not infrequently of aphasia. In the older age group cerebral thrombosis from arteriosclerosis, or more rarely from syphilis or polycythemia, should be considered. With the younger age group, a ruptured congenital aneurysm is more apt to be the cause. Hemorrhage is also seen frequently in the hypertensive group in which the same neurologic signs are observed. The blood pressure seldom falls in these cases, contrary to that of the primary neurogenic shock. The neck is usually rigid if the blood penetrates into the subarachnoid or intraventricular spaces, where it can be readily detected by spinal puncture.

Less commonly are seen embolic phenomena which involve the cerebral vessels and cause various signs of cerebral damage, according to the vessel in which the embolus lodges. The usual source of these emboli is a thrombus in the left auricle in cases of mitral stenosis or auricular fibrillation, a left intraventricular thrombus in cases of infarction of the myocardium, and the vegetations on the involved valves in subacute bacterial endocarditis. Diagnosis is usually readily made in patients with any of these diseases who exhibit evidence of sudden cerebral damage.

Stokes-Adams Syndrome.—Two other sources of syncope will be mentioned here, although the real cause is a disturbance of rate and rhythm of the heart. In the Stokes-Adams syndrome, the physician usually sees the patient who has just "fallen out" but who now feels well again, for the duration of these episodes is always short. An episode consists of sudden "fainting away spells" which vary in duration from seconds to minutes, going progressively from a momentary dizziness to complete syncope, falling, convulsions, and sometimes death. These episodes recur often in some instances and are always associated with serious organic cardiac disease. If the physician is present during an attack, he finds a slow pulse, usually slightly irregular, frequently with sounds of "dropped beats" rather than the usual premature contraction with its compensatory pause. Electrocardiograms will show the exact nature of the mechanism, which usually consists of an abnormally prolonged P-R interval or a complete auricular ventricular dissociation.

Read before the Texas Heart Association, San Antonio, May 2, 1949.

Carotid Sinus Syndrome.—The hypersensitive carotid sinus also produces syncope but is rarely associated with serious heart disease. It is suspected in frequent attacks of syncope without other obvious causes. It is confirmed by placing firm and increasing pressure over the main bifurcation of the common carotid artery for five to twenty seconds. This stimulates the nerve endings surrounding the blood vessels and reflexly exerts its vagal influence on the heart. Caution should be exercised that no more than the necessary pressure be exerted and then only on one side at a time. This is particularly true in elderly persons in whom more than transient hemiplegia has occasionally developed as the result of cerebral anoxemia and thrombosis. The exciting cause is seldom found but occasionally observable local lesions will explain the hypersensitiveness of this area.

RESPIRATORY EMBARRASSMENT

Respiratory embarrassment is seen in many emergencies. Some of these are acute pulmonary edema, spontaneous pneumothorax, pulmonary embolism, and acute cardiovascular collapse due to coronary occlusion or to an attack of paroxysmal tachycardia.

Acute Pulmonary Edema.—The typical appearance of acute pulmonary edema is familiar. The physician usually sees an anxious, elderly, hypertensive patient who is sitting on the edge of the bed with hands propped on his knees struggling for breath, with a hacking cough productive of frothy, blood-tinged sputum. The veins of his neck are engorged, his lips are cyanotic, and his face may be either flushed or pale. The heart beat is rapid and frequently irregular. The lungs are full of moist rales and occasionally coarse rhonchi are heard. In the milder, nocturnal attacks the patient responds to symptomatic therapy in from a few moments to an hour. However, in more severe cases the pulmonary congestion continues for hours and the patient not infrequently succumbs unless prompt therapy is instituted.

Respiratory embarrassment may occur in association with paroxysms of tachycardia and during acute coronary occlusions when the above picture of acute pulmonary edema is added to the basic cardiac condition.

Pulmonary Embolism.—The association of chest pain and respiratory embarrassment is seen frequently in pulmonary embolism and infarction. Pain is not always present, depending on the site and size of the embolus, but shock is usually present in varying degrees. The mortality is high—87 per cent has been reported. Of these 8.5 per cent expired in the first ten minutes, and 33.0 per cent in less than one hour. However, these patients seldom die as quickly as those with a severe coronary occlusion. Pulmonary embolism and infarction usually offer a history of a previous injury, of an operation, or of a prolonged illness necessitating bed rest or immobility of certain portions of the body, usually the lower limbs. Occasionally old ulcers and chronic varicosities give answers to the question of origin. Chronic valvular heart disease, particularly when associated with auricular fibrillation, is a frequent cause of pulmonary emboli. Less often, an embolus arises as the result of an infarction in the wall of the right ventricle following a coronary occlusion. In all severe cases of embolism, the physician finds a seriously ill patient, markedly cyanotic, struggling for breath, with distinct congestion of cervical veins, and complaining of acute agonizing chest pain without the characteristic radiation of a coronary occlusion. The heart is laboring with accentuation of pulmonic second sound. Cardiovascular collapse soon occurs and the pulse becomes weak and thready. If the patient survives the first several hours, he will develop a leukocytosis usually more severe than that associated with a coronary occlusion. Hemoptysis is associated with large infarctions, and later jaundice is sometimes seen.

The electrocardiogram gives some diagnostic help in cases of pulmonary embolism that are not exhibiting clear-cut clinical signs. There is a constant deep S-wave in lead 1, associated with a large Q3. The ST3 is depressed, and T-waves in lead 2 are low or inverted, with deep inversion in T3 and the T in the CF2-4 in the precordial leads. These usually revert to normal fairly quickly as the pressure on the pulmonary circuit decreases.

CHANGED CARDIAC RATE AND RHYTHM

Some of the cardiovascular emergencies are caused by paroxysmal heart action. The extent of the emergency will depend upon the type and duration of tachycardia and by the original functioning capacity of the heart. Thus an episode of paroxysmal auricular tachycardia in an otherwise normal heart usually terminates quickly with or without treatment and usually without precipitating an emergency, whereas ventricular tachycardia associated with a coronary occlusion often brings about an emergency in which the prognosis may be much graver. In all of these episodes it is usually easy to get a history of abrupt onset and sudden offset, which is an important point in the diagnosis of these paroxysmal tachycardias as compared with the gradual change of rate in a sinus tachycardia.

Paroxysmal auricular tachycardia is the most commonly encountered arrhythmia of this type. The ectopic rhythm arises somewhere in the auricles and sets both auricles and ventricles beating at a rate of from 150 to 250 per minute. It is rarely associated with serious heart disease, although it may precipitate

anginal symptoms when it occurs in persons with a moderate degree of coronary sclerosis. The duration varies from a few minutes to days. The rhythm is regular with no variation from time to time, with change of position, with breath holding, or with other maneuvers. The quality of the heart sounds is also stable without variation in intensity. As Levine pointed out, this regularity of rhythm and sound is so constantly true that it is one of the best clinical signs and should enable the careful observer to make the diagnosis at the bedside. The physician usually sees an anxious patient complaining of palpitation (sometimes the patient has fainted at the onset). There is usually no dyspnea but there may be nausea, vomiting, abdominal distention, and belching. The blood pressure is low with a very low pulse pressure. The patient frequently assumes unusual postures, seeking relief from the peculiar and alarming sensations.

The characteristic reaction of the patient to vagal stimulation is a diagnostic as well as therapeutic measure. Ocular pressure, carotid sinus massage, and severe vomiting will usually cause an abrupt cessation of the tachycardia.

The electrocardiographic features in paroxysmal auricular tachycardia consist primarily of abnormal P-waves, usually inverted in leads 1 and 2, diphasic in 3, and upright in the chest leads. By forced breathing, changing the position of the heart, these P-waves can be modified in many instances. The contour of the QRS waves may be normal or slightly widened as a result of fatigue of the ventricular conduction system.

Ventricular Paroxysmal Tachycardia.—The same clinical picture is frequently seen with ventricular paroxysmal tachycardia, which also gives a fast pulse rate with a ventricular rate of from 130 to 200. This syndrome is almost always associated with serious organic heart disease. Here the ectopic impulse arises from the ventricles. The rhythm and rate vary slightly from time to time and Levine described a variation in the intensity of the first heart sound. Since the rhythm begins in the ventricles there are usually less jugular pulsations from the auricles than there are ventricular contractions. Vagal stimulating measures do not affect the tachycardia in any manner. Electrocardiograph complexes similar to those usually seen in ventricular premature beats can be observed, a slight variation in rhythm can be measured, and variation in the shape of the ventricular complexes can be noted. In severe cases the ventricular waves will alternate in their main ventricular deflection; when present this sign carries a serious prognosis.

Auricular Fibrillation.—One of the most common arrhythmias, but one which not so commonly causes an emergency situation, is auricular fibrillation. It is easily recognized by the absolute irregularity of the heart, the rate usually varying between 130 and 170 at the apex. There is a pulse deficit at the wrist which varies directly with the severity of the attack. The mechanism is the familiar circus movement close to the sinoauricular node of the auricle, which is contracting from 300 to 500 times per minute; the ventricles respond as quickly as they can to the transmitted auricular impulses. The ventricular rhythm is always grossly irregular. Organic heart disease is usually present. Mitral stenosis, hypertension, and coronary insufficiency are the common forms. Hyperthyroidism may be the cause. The vagal stimulation tests may slow the rate, but the heart returns immediately to its previous rapid rate and grossly irregular rhythm. The electrocardiogram is confirmatory by its characteristic small variations from the base line (F waves), the absence of P waves, and the irregularly spaced ventricular complexes of essentially normal contour.

Auricular Flutter.—To complete the group of paroxysmal tachycardias one has to include auricular flutter, for it is occasionally paroxysmal in nature. It frequently persists for hours to years and is usually associated with organic heart disease. The auricular rate is from 250 to 350 per minute and the ventricular rate is usually one-half that of the auricular. The rhythm is usually regular, but when the degree of A-V block varies, the ventricular rate is also varied. Auricular flutter is rarely recognized clinically, but the electrocardiogram is usually diagnostic. However, Levine has said that vagal stimulation slows the rate, and then on cessation of the stimulation there is an "irregular" return of the heart to its original rate and rhythm, passing through the varying degrees of A-V block on its return to the faster rate. The cardiogram shows the large, frequent flutter waves that represent the response of the auricles to the regular circus movement arising in a ring close to the great veins. The ventricular complexes may occasionally be widened as is sometimes seen in paroxysmal auricular tachycardia. The physician can easily determine if there is a 2:1, 3:1, or 4:1 block. Rarely a 1:1 block exists with a ventricular rate of 200 to 250 per minute.

CHEST PAIN

Coronary Occlusion.—Every physician is familiar with the typical attack of coronary occlusion with myocardial infarction. This is one of the common cardiovascular emergencies faced in dealing with the general public. The pain is usually sudden and severe in the region of the sternum, frequently viselike, constricting or expanding in nature, and is often referred to the shoulders, neck, and arms; it is not relieved by rest or nitroglycerine. The person may be pale; is frequently ashen, and cyanotic, with cold and

clammy skin; and may be in a collapse of varying proportions. If the patient survives the acute shock, the physician substantiates the diagnosis by the observation of a leukocytosis, increased sedimentation rate, fever, and frequently by a pericardial friction rub. The typical electrocardiographic patterns are also found, the types depending on the location of the infarction.

When typical accessory symptoms and signs are not present and the pain is not characteristic, the physician should remember the other possibilities and look for better explanations.

Dissecting Aortic Aneurysm.—Another cause of pain in the chest is dissecting aortic aneurysm. It is most commonly found in men between the ages of 40 and 60. The incidence in women is rather low, but pregnancy is uncommonly frequent in those affected. A history of syphilis is usually absent. The pain is sudden in onset, extremely severe, and is difficult to relieve, and is usually in the upper portion of the chest. It radiates into the neck but rarely into the arms. Fischer stated that there is a mortality of 80 per cent in the first twenty-four to forty-eight hours. As the blood dissects through the layers of the aorta, symptoms of disturbance of the circulation of the involved organs appear. Compression of the coronary arteries occurs if the aneurysm dissects proximally. Symptoms of interference with the blood flow in the cerebral, renal, mesenteric, or intercostal arteries may develop if the aneurysm dissects caudad. A difference in the blood pressure in the right and left extremities is frequent, but the blood pressure tends to remain high despite the pain and shocklike picture accompanying the condition.

As the aneurysm dissects down the aorta, pain often appears at lower levels. Roentgenographic findings may be diagnostic. Occasionally an aortic diastolic murmur suddenly appears, and when present, it is very diagnostic. Electrocardiographic changes are usually not specific and tend to reflect only the degree of coronary insufficiency present.

Pulmonary embolism, as discussed previously, should be considered as a cause of chest pain and respiratory embarrassment.

Cardiac tamponade occurs occasionally. It may be traumatic, infectious, or degenerative. When free hemorrhage into the pericardium occurs, there is a quickly progressive condition of severe shock which arises from increasing pressure inside the pericardial sac. This pressure limits the expansion of the heart and decreases the inflow of blood with its consequent severe distention of the neck veins. As cardiac output diminishes, the pulse accelerates, but the blood pressure continues to drop. Unless the constricting fluid is released by surgical treatment or repeated pericardial aspiration, the condition rapidly proves fatal. Infection with its more slowly accumulating fluid can cause the same picture over a longer period of time, with which hepatic enlargement may also be present.

SUMMARY

Cardiovascular emergencies are usually classified into disturbances of consciousness, disturbances of cardiac rate and rhythm, respiratory embarrassment, and acute chest pain. Benign syncope and cerebrovascular accidents are the common forms seen in the first group. Occasionally there are attacks of syncope from Stokes-Adams syndrome and the hypersensitive carotid sinus. Respiratory embarrassment of a strictly cardiovascular origin includes acute pulmonary edema and pulmonary embolus with its accompanying infarction. Electrocardiograms are of definite help in diagnosis of the pulmonary emboli in certain cases. The differentiation of the tachycardias is made by close observation of the rate and rhythm, character of heart sounds, the response to vagal stimulation, and the electrocardiographic patterns produced. Tachycardias producing emergency situations are paroxysmal auricular and ventricular tachycardias, paroxysmal auricular fibrillation, and rarely auricular flutter. The causes of emergencies with acute chest pain are coronary occlusion with its familiar patterns of pain and cardiographic signs, dissecting aortic aneurysm, pulmonary embolism, and cardiac tamponade.

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ALCOHOLISM IN UNITED STATES

An estimated 3,000,000 persons in the United States are excessive drinkers and nearly one-fourth this number are said to be chronically alcoholic, according to a report by the Council on Medical Education and Hospitals of the American Medical Association which appears in the October 29 issue of *The Journal of the American Medical Association.*

The survey indicates that of 6,276 hospitals registered by the American Medical Association, 1,718 in 1947 accepted patients to be treated for alcoholism. New York with 121 such hospitals admitted 12,175 patients, nearly twice as many as California's 6,101 patients, the next largest number of admissions. Texas ranked next to New York in the number of hospitals accepting alcoholic patients—107—but ranked eighth in the number of admissions for alcoholism with 2,516 patients.

MODERN MANAGEMENT OF CONGESTIVE HEART FAILURE

With Especial Reference to Edema

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GOOD management and treatment of heart failure are dependent upon clear concepts of its mechanism. The traditional theories of "backward pressure congestive" and "forward circulatory failure" have been reexamined during the past several years by various clinical investigators. The sequence of events explained on the purely mechanical basis of disturbances in the blood flow in the heart and great vessels has been found, after careful study, to be inadequate. Stasis alone cannot account for all the established facts concerning cardiac output, increased blood volume, sodium and water retention, and the dramatic therapeutic effects of the mercurial diuretics.

The application by various groups of investigators of the direct Fick principle with catheterization of the right side of the heart has yielded significant data. It has been found that in certain conditions congestive failure occurs even in the presence of an elevated cardiac output as well as with lowered cardiac output. Generally heart disease with a decreased cardiac output leads to early decompensation and responds promptly to therapy, whereas heart disease with an increased cardiac output usually fails late and responds poorly to therapy.

In congestive heart failure not only is venous pressure increased but also arterial pressure is maintained or increased. In some studies of experimental cardiac tamponade made in Galveston[7] long after those of Cohnheim,[4] there was found to be a fall in arterial pressure despite a rise in venous pressure. Starr and others[14] showed by mechanical models that an increase in venous pressure under a maintained arterial pressure can be sustained only so long as the total volume of fluid circulating is increased. Merrill[11] has further pointed out that if venous pressure increase is the cause of congestive failure, hemoconcentration, rather than the hemodilution usually found, should be produced. He emphasized the importance of the retention of salt and water in the mechanism of high output failure. He found that in such cases the minute volume of blood flow is reduced relatively and the blood supply to the kidney is reduced disproportionately as the result of demands by other tissues. Merrill insisted that the prompt decrease in renal blood flow in patients developing congestive heart failure is the first and most significant functional adjustment. Schroeder[13] and his group precipitated edema by giving large doses of sodium chloride orally or by injection.

Warren and Stead[15] gave patients with congestive failure regular injections of mercurial diuretics and obtained so-called "dry weights." Careful study upon withholding the diuretics revealed that an increase in weight and edema preceded a rise in venous pressure. With this observation they concluded that salt and water retention was the most important primary and immediate factor in the development of congestive heart failure.

Opposing views were championed from Harrison's clinic by Reichsman and Grant;[12] they observed patients with auricular fibrillation who were made edema-free and whose venous pressure was brought to normal by digitalization. The digitalis was then discontinued and a rise in venous pressure was observed before any gain in weight or edema was apparent. The authors explained away the conclusions of Warren and Stead on the assumption that patients given an intensive course of mercurial diuretics until down to a "dry weight" were in a state of abnormal dehydration and that their weight gain was merely the result of reestablishment of fluid equilibrium. McMichael[10] concluded that the venous congestion and venous pressure rise in congestive heart failure was the result of widespread constriction of the veins. His explanation in the cases of Reichsman and Grant was that the digitalis relaxed the veins and therefore lowered the venous pressure and that when the digitalis was discontinued the veins became constricted again with a resultant rise in the venous pressure.

The salt and water retention, as emphasized by Merrill and by Warren and Stead, is a matter of first importance in congestive heart failure. It has been shown by Futcher and Schroeder[5] and again by Reaser and Burch[1] that the kidney in congestive heart failure is unable to excrete sodium normally. Merrill considered that the filtration of sodium perhaps is not greatly decreased but rather that its reabsorption from the renal tubules is increased. This reabsorption may be caused merely by a slowing of the blood flow in the vessels around the tubules, but it may be largely the result of an excess of antidiuretic hormone, which presumably could arise incidental to a slowing of the circulation in the anterior pituitary gland and the adrenal cortex.[6] The fact that the kidney tubule selects primarily only the sodium for

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almost total reabsorption indicates that it may be a hormonal effect. The tenacity with which tissue colloid cells hold the sodium may be associated with local changes. The volume of the plasma and of the extracellular fluid increases.

It is thus seen that new concepts would emphasize extracardiac factors in the progressive sequence of events in the development of congestive heart failure and edema formation. Despite such emphasis, one cannot abandon the concept that the primary source of difficulty is the insufficiency of the myocardium itself. The challenge to establish the role of the heart in the mechanism of congestive failure has brought about a reevaluation of extracardiac factors and has placed therapy on a more solid footing, thereby increasing its effectiveness. Even investigators who reaffirm the backward failure theory admit also that generalized edema cannot occur unless the kidneys excessively retain sodium. Since the renal factor is the more important quantitatively, therapy has been increasingly directed at the kidney.

In the treatment of congestive heart failure the first step necessarily should be to restore circulatory equilibrium. This is done by reducing the circulatory load as quickly and as much as possible through (1) optimum physical rest, including sedation and narcotics as needed; (2) bloodless or actual phlebotomy to reduce blood volume; (3) removal by aspiration of embarrassing accumulations of fluid in the pleural, pericardial, and peritoneal cavities; (4) improving the myocardial tone with digitalis; (5) low sodium, neutral ash, and acid salts intake; (6) coronary vasodilators to bolster myocardial nutrition; and (7) mercurial diuretics.

It has been found that acid-yielding foods and acid salts call forth the sodium from the tissues to form neutral salts for excretion by the kidneys. Water is thus released in the tissues and taken up by the cells or the blood, then transported to the kidneys to be excreted together with the neutral salts formed. The water and salt thus excreted in the urine is replenished to the plasma from the tissue fluids and the edema tends to be dissipated.

Studies on the influence of various drugs on the elevated plasma volume occurring during diuresis were carried out years ago in our biochemical and cardiovascular research laboratories.[2] The drugs studied were Digoxin, Salyrgan, and aminophylline. Digoxin was noted to cause a slight increase in plasma volume, which apparently was dependent upon the attainment of the desired myocardial effect and which was followed by a decrease in plasma volume, the amount being dependent upon the rate of diuresis. When Salyrgan was used, a marked drop in plasma volume occurred for the first eight to twelve hours, after which there was a partial restoration of the plasma volume. Also, an accessory action on tissue fluid mobilization seemed to be exerted in that 2 cases, 1 with delayed diuresis and 1 without diuresis, showed a slightly increased plasma volume. Aminophylline given intravenously was found to bring about a relatively large rise in plasma volume, with the first rise coinciding with onset of diuresis. The plasma volume then fell slightly during rapid diuresis and, as diuresis slowed, rose again and persisted for about six hours, after which a sharp drop occurred. Herein was a suggestion of a general circulatory or a tissue effect. A suspected slight shift in the delicate plasma sodium balance by an initial loss in the urine often could not be demonstrated by relatively late studies with rather crude sodium methods. In later unreported direct renal arterial injection and venous and renal pelvic aspiration studies, we observed a slight upset with an initial drop in plasma sodium and rise in urinary sodium, suggesting that this shift may be the factor that calls sodium and water from tissue interstices.

DIURETICS

Within the past few decades conspicuous activity in the development of diuretics has existed. The xanthines—caffeine, theophylline, and theobromine salts—were widely used until about 1920. In the 'twenties it was discovered that the organic heavy metals such as mercurial Novasurol used in antisyphilitic therapy caused a profuse diuresis in edematous patients suffering from syphilitic aortitis and aortic valvular disease. The early improved organic mercurials such as Salyrgan were found to be potent diuretics but also were found occasionally to have some toxic effect upon the liver and the tubular epithelium of the kidney. Also, rare serious and fatal toxic effects upon the myocardium immediately after intravenous injection of mercurial diuretics have been reported. The intravenous route was the only one available for administration since these early drugs were too irritating to be given intramuscularly or subcutaneously.

We combined Salyrgan with aminophylline for augmented diuretic action after we had studied their separate mechanisms of action. We concluded that the aminophylline had a vasodilating effect upon the kidney glomeruli, increased the blood flow, and brought about filtration. The effect of Salyrgan was to produce diuresis by decreasing tubular absorption. It was concomitantly observed that when acid theophylline was added to the strong basic mercurials the potency was enhanced, at the same time rendering the compound less irritating. Novurit Mercupurin, or Mercuzanthin, was thus developed by the Hungarians and shown to be a superior, less irritating diuretic.

However, it was shown by Jackson[8] that both these

mercurial diuretics had direct toxic effects upon the myocardium. In recent years some serious and a few fatal reactions with increased myocardial irritability and acute cardiac depression have been reported after intravenous injections. In some patients a fatal anuria was produced. These drugs were primarily for intravenous use and when used intramuscularly generally had to be given with a local anesthetic. A still less irritating and less toxic mercurial, succinyl urea compound with theophylline, was then developed and called Mercuhydrin. This was potent and well tolerated when injected intramuscularly and apparently was less toxic than the drugs which it largely replaced. In lethal doses it was shown by Chapman and Shaffer[3] to produce cardiac standstill rather than ventricular fibrillation as did the other mercurials. In addition, the authors found that ascorbic acid was protective against the toxic myocardial effect while not reducing the diuretic potency. Within the past several weeks here a 4 year old child intensively treated with Mercuhydrin was found at autopsy to have a toxic nephrosis which was selective for the cortical tubules of the kidney. This case will be reported in full later, but the condition apparently was caused by repeated intramuscular injections of Mercuhydrin.

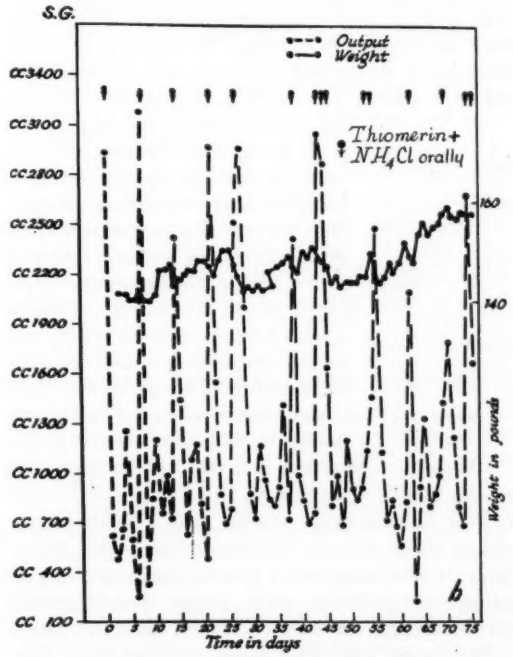

FIG. 1. Graph showing the effect of Thiomerin plus acid salts in a patient with chronic congestive heart failure over an extensive period of time.

We have been on the lookout for the symptoms and signs of the so-called salt depletion syndrome which could result from a sharp restriction of sodium intake and a simultaneous drastic diuresis with maximal sodium output, but we have not recognized and proved a case. The development of refractoriness of a patient in congestive failure and at the same time weakness, lassitude, anorexia, nausea, vomiting, hiccough, thirst unquenched by water, restlessness, apathy, mental confusion, dyspnea, fall in blood pressure, increase in pulse rate, diminution in pulse volume, clammy skin, shock, coma, uremia, high nonprotein nitrogen, low blood chlorides, and death have been reported. The appearance of any of the earlier symptoms enumerated above call for immediate examination of the urine for sodium chloride and determination of the plasma levels. If these are low, isotonic saline solution must be given with great care.

CLINICAL STUDIES

Clinically, the usefulness of the mercurial diuretics has been well established in the treatment of edema whether caused by heart failure, hypoalbuminemia, nephrosis, or cirrhosis of the liver. Burch and Reaser[1] used the tracer isotope sodium 22 to study salt and water metabolism and observed that patients with congestive heart failure took twelve weeks to eliminate 50 per cent of the tracer ions, whereas normal persons eliminated the same amount in twelve days.

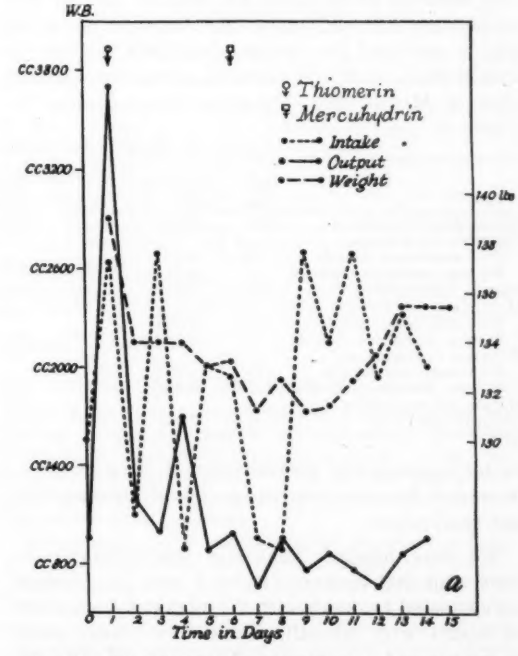

FIG. 2. Graph showing diuretic results with Thiomerin as compared with Mercuhydrin.

It was noted that the injection of a mercurial diuretic caused a seventy-five fold increase in the sodium and chloride output in the urine, thus accounting for diuresis and decrease of edema fluid.

During the war BAL (2-3 dimercaptopropanol) was found to be a specific antidote for heavy metal poisoning. It was used with mercurial diuretics to prevent the toxic mercurial action on the myocardium, but the double sulfhydril also stopped diuretic action. Chemists then developed a new mercurial compound with a single rather than a double sulfhydril radicle, and ultimately a less irritating and less toxic mercurial diuretic, Thiomerin. Thiomerin is Mercuzanthin with mercaptan instead of theophylline. Both drugs are made up to contain about 39 mg. of mercury per cubic centimeter. In comparison with other mercurials in animals, Thiomerin was noted to be much better tolerated intravenously and intramuscularly with the further great advantage of being practically nonirritating subcutaneously. Absorption was observed to be rapid, and diuretic potency was satisfactory. Lehman[9] studied the compound and noted that it produced no electrocardiographic changes in cats in doses up to 160 times the maximum tolerated dose of Mercuhydrin. Thiomerin was submitted to us for experimental confirmation of these observations and for more extensive clinical investigation and observation.

TABLE 1.—*Summary of Clinical Diuretic Results.*

Drug	No. Cases	Total Urine 1st Day (cc.)	Average Increase in Output of Urine (%) 1st Day	2nd Day	3rd Day	Total
Mercupurin (intravenous)	611	2,502	476	151.6	79	707.4
Thiomerin (intravenous)						
With ammonium chloride	14	4,475				
Without ammonium chloride	46	3,125	348	136	101	585
Salyrgan (intravenous)	125	2,567	341	120	62	526.0
Mercuhydrin (intravenous)						
With ammonium chloride	8	2,992				
Without ammonium chloride	56	2,182	267	131	105	503
Thiomerin (subcutaneous)						
With ammonium chloride	171	3,794				
Without ammonium chloride	129	2,087	265	178	108	491
Salyrgan and theophylline (intravenous)	75	2,505	335	107	42	484

We have injected Thiomerin subcutaneously in more than 400 patients (tables 1 and 2). Diuresis has compared favorably with that obtained from other mercurials, with generally a somewhat slower onset of diuresis and a more gradual tapering off. The use of acid salts—principally ammonium chloride—generally has been found to enhance greatly the diuretic potency of Thiomerin (fig. 1). Thiomerin has also been used intravenously in 118 patients, on most of whom electrocardiographic tracings were taken before, during, and at one minute intervals for five minutes after injection of the drug. Changes in the electrocardiograms, generally only lone extrasystoles, occurred in 12 per cent of patients. A few patients were checked in the same manner after Mercuhydrin. The incidence of the electrocardiographic changes as observed by us in the use of Thiomerin intravenously was only about half that noted by Wolff and Sagall[16] in their studies with the other mercurial diuretics. Further, the changes observed were less potentially serious than those found with other mercurials given intravenously. In only 2 cases were there noted two or more extrasystoles occurring together.

Thiomerin has been given (though we do not recommend this procedure) in full 2 cc. doses subcutaneously for five consecutive days without any appreciable kidney damage, as shown by routine urinalysis and by Addis counts. Little evidence of renal irritation has been noted after the use of Thiomerin, certainly no more than has been encountered with the other mercurial diuretics. In frequently repeated doses to patients on a salt-free diet, sodium depletion may possibly result and should be guarded against. Weight loss with Thiomerin given subcutaneously in our large series of cases has averaged just under 4 pounds for each 2 cc. dose and just over 5 pounds with a 2 cc. dose given intravenously. There have been only 2 febrile reactions to the drug given intravenously. As both of these reactions occurred with the same vial of Thiomerin, it is probable that they were not caused by the drug but by some pyrogens in the distilled water used in making up the solution. Likewise, 2 febrile reactions occurred with the use of subcutaneous Thiomerin, but both patients had had severe febrile reactions from Mercuhydrin. In 1 case in which a severe reaction with delirium and mental confusion was observed with Mercuhydrin, Thiomerin was used subcutaneously with good diuretic response and without reaction (fig. 2).

Thiomerin is dispensed in a vial containing enough powder so that dilution with 10 cc. of distilled water from an accompanying ampule gives a solution containing about 40 mg. of mercury per cubic centimeter. It will keep as dry powder for a year under ordinary temperatures, much longer if refrigerated. Once made up, the solution should be refrigerated. It decomposes after four weeks, possibly more rapidly at higher temperatures, to yield a yellow precipi-

TABLE 2.—*Comparison of Thiomerin and Mercuhydrin Reaction.*

Drug	No. Cases	Local or Systemic Reactions	Electrocardiographic Changes
Thiomerin (subcutaneous)	403	7 local	.....
		2 febrile	.....
Thiomerin (intravenous)	118	2 febrile	.....
	95	.....	11
Mercuhydrin (intravenous)	67	2 febrile	.....
	55	.....	12

tate, the warning signal that the drug is no longer fit for use. The drug is injected into the upper arm or thigh and should be deposited beneath the subcutaneous fat. Local reactions tend to occur infrequently, but particularly if the drug is injected intradermally, into the subcutaneous fat, or into edematous tissue.

Our results after the use of Thiomerin in patients with congestive failure are shown in the accompanying tables.

SUMMARY AND CONCLUSIONS

The importance of extracardiac factors in the treatment of congestive heart failure is stressed and the possible mechanism of the retention of salt and water in congestive heart failure is briefly discussed. The development of older and more recent diuretics is reviewed, with particular reference to the most recent, Thiomerin. Clinical trials with Thiomerin given subcutaneously and intravenously are reported and compared with other mercurial diuretics. Mention is made of the dangers in the use of mercurial diuretics.

Thiomerin is the most recent mercurial diuretic thus far developed, and its potency is at least comparable to that of other mercurial diuretics. We believe that its toxic and depleting effects are less than for any of the other mercurial diuretics.

Thiomerin may be administered subcutaneously. Occasionally subjective pain was reported, but only rare instances of significant local reactions were encountered in hundreds of injections. Generally evanescent, slight reactions at the site of injection were noticed in from 20 to 30 per cent of patients.

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AIR FILTERS GIVE HAY FEVER VICTIMS LIMITED RELIEF

Some hay fever sufferers expect too much from home air filtering systems, says a medical consultant in answer to a query in the October 1 issue of *The Journal of the American Medical Association.*

"In the case of pollen and mold spores most of the exposure occurs during the daylight hours," he points out. "The number of pollen or mold spores to which the patient is exposed during the night in his bedroom without a filter is about 5 to 20 per cent of that to which he could be exposed during the 24 hour period under usual conditions.

"One cannot expect too much benefit from a measure directed to a fraction of the sufferer's allergen exposure. If the patient is willing to stay in the prepared room the greater part of the 24 hours, the results can be much better."

By now it must be plain that the fight against tuberculosis is a social and economic movement as well as a disease problem. We now have enough information to be confident that an awakened awareness of the people is the chief tool for triumph.—Francis J. Weber, M. D., Ohio Pub. Health, February, 1948.

FUNGI SPORES MAY CAUSE HAY FEVER

The spores of fungi producing several plant diseases get into the air and thus may be scattered widely, becoming the cause of symptoms of hay fever or asthma in man, reports Marie Betzner Morrow, Ph. D., and her associates at the University of Texas, Austin, in the September-October issue of the *Annals of Allergy.*

The methods used in most studies of the spores of fungi in the air have missed the spores of fungi which produce disease in plants. Dr. Morrow urges more investigation of these fungi as a cause of allergy, and such studies are going forward on a cooperative basis by some fifty allergists throughout the country under the direction of Dr. Homer E. Prince, Houston, vice-president of the American College of Allergists.

That older persons now constitute the major focus of tuberculous infection is emphasized by recent autopsy studies which show that a relatively large number of persons supposedly succumbing to diseases other than tuberculosis were found to have this disease in active form. It is recognized that the disease in older persons is frequently mild and that the symptoms may be overlooked.—Statistical Bull., Metropolitan Insurance Co., Nov., 1948.

VERATRUM VIRIDE (BIOASSAYED) IN TREATMENT OF ESSENTIAL HYPERTENSION

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VERATRUM viride has been advocated in the therapy of hypertension by many workers in the past forty years. Its unpredictable toxic effects, particularly vomiting and collapse, have precluded the general use of the drug. Recently a bioassayed preparation of powdered Veratrum viride (Vertavis*) has been available for oral use. It has been standardized so that 1 Craw unit is the amount required for systolic arrest of the heart in the transparent crustacean, Daphnia magna. Consequently, interest has been reawakened in its employment in the toxemia of pregnancy and other hypertensive syndromes.

Hite[4] used Vertavis in 30 cases of various types of hypertension in doses of 30 to 90 Craw units daily. The greatest fall in diastolic pressures was 44 and the average 13.7 mm. of mercury.

In cases of essential hypertension Freis and Stanton[2] employed oral tablets of 5 and 10 Craw units, 10 Craw units hourly morning and evening being the basis of increasing dosage up to hypotensive or toxic levels. The maximum hypotensive response occurred in from four to six hours and lasted up to from twelve to fourteen hours. The therapeutic dose varied from 10 to 40 Craw units, and the margin between the therapeutic and toxic dosage was, as a rule, no greater than 10 Craw units. No statistical treatment of the data was offered, but in the judgment of the authors a drop of at least 20 mm. in the systolic and 15 mm. in the diastolic pressures was significant and occurred in 5 of 6 hospitalized and 30 of 34 outpatient cases.[2] However, Freis stated later that continued hypotensive effects occurred in 33 per cent of his patients[1] after prolonged administration of the drug.

MATERIAL AND METHODS

We have used this preparation of Veratrum viride in 38 ambulatory cases of uncomplicated essential hypertension. The study was part of a larger one involving regimens of marked sodium depletion and repletion.[10] Each period lasted at least three weeks, during which either a placebo (sodium bicarbonate, 0.3 Gm. tablets) or the drug was administered. The blood pressures were checked in triplicate after the patients rested in the sitting position, twice weekly three to seven hours after the midmorning dose of the drug or at the time of its maximum effect. The dosage scheduled began with 10 units at 7 a. m. and 7 p. m., increasing by 5 or 10 units hourly up to definitely hypotensive or toxic effects. The maximum hourly dose was generally 10 Craw units.

In addition, we have studied in greater detail 8 hospitalized cases of essential hypertension in which hourly blood pressures were taken. The patients were on a salt-poor (0.5 Gm. sodium) diet. Amounts as large as 120 Craw units per day were administered in both hospitalized and ambulatory patients to evaluate the maximum hypotensive effects of the drug. The one exception was a hospitalized patient (M. M., table 1) who received up to 270 Craw units in a twenty-four hour period. Etamon and sodium amytal tests were performed in all of the hospitalized cases and many of the outpatient group.

SYMPTOMATIC EFFECTS

The extreme variability and psychoneurotic connotations of symptoms in essential hypertension have been previously emphasized. In our experience symptoms such as headache, insomnia, palpitation, and eructations have been present in at least one-half of untreated cases. In the control period remarkable disappearance of symptoms would often take place immediately, not infrequently with recurrence or replacement by other complaints later. Still, the majority of patients were symptom free, regardless of failure of the blood pressure to decrease, on placebo.

On Vertavis the same immediate symptomatic improvement occurred, headache and insomnia being especially relieved in many cases. Toxic side effects attributable to the drug occurred when it was used in ascending amounts at a dosage level of from 20 to 100 Craw units, but especially above 60 units, morning or evening. Salivation, eructations, and nausea were the warning signals; vomiting followed. The toxic effects occurred in an average of from three to four hours after the first of the hourly doses. At times they were unaccompanied by falls in blood pressure. Usually, but not consistently, the hypotensive preceded the toxic effects in the ascending dosage. It follows that we were not able to prevent the toxic effects regularly through downward adjustment of the dosage by 5 Craw units, as recommended by others.[1, 2]

To determine the absolute limits of toxicity and

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safety the Veratrum preparation was pushed to the limits of collapse in 2 hospitalized (M. M. and E. K., table 1) and 6 ambulatory cases. Syncope, with blood pressures between 80/60 and 110/80 for several minutes, occurred at doses of from 40 to 270 units. Marked bradycardia, headache, sweating, dizziness, and weakness were infrequent except in association with this vasovagal type of collapse.

In the hospitalized patient M. M. (table 1), who received deliberately toxic doses as high as 270 Craw units, blood pressures as low as 100/80 were accompanied by mental confusion, nausea, vomiting, perspiration, and mild collapse. Her serum nonprotein nitrogen rose from 24.6 to 55.6 mg. per 100 cc. of blood but returned to normal levels when the drug was discontinued. The blood pressure also rose to premedication levels after the drug was stopped. In the other hospitalized patient (E. K., table 1) a rapid fall in blood pressure to 110/70 five hours after the administration of 40 Craw units over a period of four hours resulted in symptoms of circulatory collapse with a transient hemiplegia lasting several minutes.

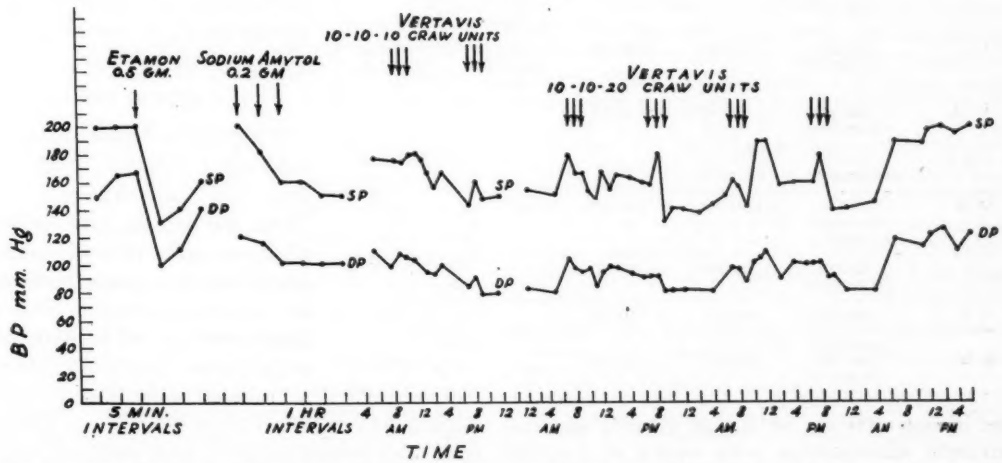

FIG. 1. Graph showing consistent drops in blood pressure produced in O. H. (case 5, table 1) by Etamon and sodium amytal, and repeatedly by 30 to 40 Craw units of Vertavis.

HYPOTENSIVE EFFECTS

Hospital Cases.—Constantly repeated falls in the blood pressures of hospitalized patients occurred in 2 of the 8 cases. In 1 of these (M. M., table 1) drops from as high as 260/160 to as low as 100/80 mm. were obtained through toxic doses of from 90 to 270 Craw units of Vertavis administered at the rate of 10 to 20 Craw units every hour. In the second case (O. H., table 1) consistent hypotensive effects were apparent in drops in diastolic pressure of from 5 to 30 mm. (median 20 mm.) with doses of from 30 to 40 Craw units administered over a three hour period (fig. 1). Occasional nausea was the only toxic manifestation. In 5 other cases diastolic pressure falls of from 5 to 70 mm. of mercury occurred in a variable and inconstant manner. In general, however, the larger and more toxic doses were the more hypotensive in action as well. The duration of the hypotensive phase, if present, in these 8 patients varied from three to ten (mostly three to six) hours after the last of the hourly doses. In 1 case the blood pressures appeared unaffected or rose or fell slightly on daily schedules of 20 to 80 Craw units subdivided into hourly doses; toxic effects without hypotensive effects occurred in this case (R. W., table 1).

Outpatient Cases.—To compare the diastolic blood pressures during the Vertavis and placebo periods, we had available at least 36, and often double that number, of readings in each case. We used the statistical methods previously found effective in our evaluation of potassium thiocyanate and other drugs used in hypertension therapy.[8] As before, range to range and median to median comparisons of all readings checked more closely with each other and gave more significant findings than the "before and after" observational method used by us in our hospital patients (fig. 1) and by other investigators.[1, 2, 4] Using the more precise procedure, we found that the hypotensive effects of Vertavis in outpatients were less marked than in the hospitalized cases but more definite than the previous unspectacular thiocyanate results.[8] Twenty-one of 38 cases presented diastolic blood pressure falls of from 1 to 10 mm. of mercury, and 12 of from 10 to 20 mm.; in 5 patients an actual rise of from 1 to 10 mm. was calculated by the above criteria. In no instance did a drop of more than 20

mm. in diastolic pressure appear, comparing the total Vertavis periods with control periods. Systolic blood pressure changes were more variable (table 2), but generally downward on Vertavis.

COMPARISON WITH VARIOUS HYPOTENSIVE MEASURES

In 31 of the above outpatients we now have comparative data on the hypotensive effects in marked sodium depletion and Vertavis administration. On a diet of only 200 mg. of sodium chloride and the parenteral administration twice weekly of 2 cc. of Thiomerin or 2 cc. of Mercuhydrin (which possess, as we have shown,[9] equivalent diuretic effects) 18 of the 31 cases presented a lowering of diastolic pressure of from 11 to 30 mm. (table 3). In 8 of the same 31 patients Vertavis had the same effect. Statistical proof of the probable valid differences in hypotensive effects of the two regimens and of both regimens as compared with placebo periods will be presented later.[10] At this time we can state, however, that both Veratrum viride and marked sodium depletion do, as a rule, reduce blood pressure, although less so and with more severe and more frequent side effects in the former group.

In table 1 are summarized the comparative maximum hypotensive effects of Veratrum viride, the sodium amytal and Etamon tests, sympathectomy (2 cases), and high spinal anesthesia (3 cases) in the 8 hospitalized patients. While Veratrum viride, at least on occasion, is effective in bringing hypertensive blood pressures to normal levels, there is no correlation between its maximum drops in blood pressure and those of other hypotensive measures. On the other hand, the sodium amytal and Etamon tests appeared to be fairly consistent in 6 of 8 cases. This may indicate a different mechanism of hypotensive action in the case of Veratrum viride, as opposed to the other hypotensive measures.

It was our general impression, however, that Vertavis produced more marked average falls in blood pressure in the early, labile hypertension group and in those cases that responded to the presympathectomy tests with marked drops in blood pressure. Four patients who had had sympathectomies within two months to two years previously for advanced essential hypertension responded in no different manner from the other cases (table 1). Prolonged administration of Vertavis appeared to produce the poorest results in cases of advanced malignant hypertension.

TABLE 1.—*Blood Pressures in 8 Hospitalized Cases of Essential Hypertension Following Various Hypotensive Measures.*

Case	Veratrum Viride	Sodium Amytal (0.2 Gm. every hour for three doses)	Tetraethyl Ammonium Chloride (0.5 Gm.)	Smithwick Sympathectomy 2 Mo. Before	Spinal Anesthesia
1. E. K.	110/70 (infrequent)	180/130	165/125	150/100 (temporary, failed)	.....
2. J. L.	140/100 (infrequent)	130/100	190/150	140/100 (temporary, failed)	180/135 160/120
3. M. M.	100/80 (huge doses)	170/130 175/130	140/95	.....	90/70
4. J. G. S.	110/80 (infrequent)	180/130 225/130	175/125	.....	175/120
5. O. H.	130/80 (not infrequent)	150/100	130/105	.....	.....
6. J. S.	120/80 (infrequent)	160/90	85/60	.....	.....
7. O. E.	100/50	140/50	150/55	.....	.....
8. R. W.	(infrequent) 160/90 (rare)	140/90	120/90	.....	.....

COMMENT

The pharmacology textbooks have condemned Veratrum viride as a toxic and cardiodepressive drug. There was actually little evidence of serious cardiac effects from therapeutic doses in our patients as judged by electrocardiographic evidence. Some reversal of the left ventricular strain pattern occurred occasionally in patients, with marked sudden drops in blood pressure after Vertavis was administered. This reversal appeared more uniformly following Etamon,[7] spinal anesthesia,[7] and sympathectomy. Much larger proportionate amounts of Veratrum (for example, Veratrone) caused deleterious conduction changes, and finally asystole, in the isolated rabbit

TABLE 2.—*Systolic and Diastolic Pressure Changes from the Placebo Periods During Veratrum Viride Administration in 38 Cases of Essential Hypertension.*

	—21-30 mm.	—11-20 mm.	—1-10 mm.	+1-10 mm.	+11-20 mm.
Systolic pressure changes	6	9	11	9	3
Diastolic pressure changes	0	12	21	5	0

TABLE 3.—*Diastolic Pressure Changes from Placebo Levels in 31 Cases of Essential Hypertension Following Bioassayed Veratrum Viride and Marked Sodium Depletion.*

Regimen	—21-30 mm.	—11-20 mm.	—1-10 mm.	+1-10 mm.
Veratrum viride	0	8	18	5
Sodium depletion	4	14	12	1

heart.[6] The most recent clinical investigations of the hemodynamic effects of the drug indicated that cardiac output is not affected downward and that peripheral vasodilatation is the primary cause of the resulting hypotension.[3, 5] Nervous (for example, vagal) reflexes probably play a secondary role.[5]

Our results showed that: (1) Veratrum viride causes drops in blood pressure, generally irregular in magnitude and duration. (2) More consistent hypotensive effects are seen in cases of labile hypertension. (3) The duration of the hypotensive effect after the last hourly dose is variable and usually lasts for at least three to six hours. (4) Cumulative toxic effects are evident, usually at hypotensive or higher doses, at varying dose levels in different persons and at different times.

In several instances 1.2 mg. of atropine sulfate hypodermically was necessary to prevent a marked bradycardia; at the same time it partially reversed the hypotensive effect of the Veratrum viride. Ephedrine or epinephrine was effective in abolishing vascular collapse, whereas atropine had no effect.

The preventive effects of atropine are consistent with the experimental proofs of the role of vagal reflexes in the action of Veratrum viride, upon which the bradycardia is wholly, and the hypotension partially, dependent. The visceral vasodilatation and diminished peripheral resistance, which have been demonstrated in animal experiments, are probably the chief causes of the hypotensive effects. This vascular effect is probably different from the neurodepressive, hypotensive actions of sodium amytal, Etamon, sympathectomy, and spinal anesthesia. This difference likely accounts for resulting discrepancies in the maximum blood pressure falls in the various cases seen in table 2.

Some of our recent work[10] indicates that in a few patients the pharmacologic effects of Veratrum viride are coincidental with an actual decrease in serum sodium concentration. At least part of the decreased concentration results from repeated vomiting in the severely toxic cases. Our observation may have a direct relationship to the hypotensive mechanism since the regimen of marked sodium depletion is associated with more uniform and significant reductions in both blood pressure and serum sodium levels. Further studies of the combined regimens of Vertavis and sodium depletion are being conducted and indicate, so far, less toxic and greater hypotensive effects than either mode of therapy alone.

SUMMARY

In 8 hospital and 38 ambulatory cases of essential hypertension bioassayed Veratrum viride in ascending doses of from 30 to 120 Craw units generally resulted in falls of the diastolic blood pressure from 1 to 20 mm. of mercury. Systolic pressures were likewise lowered in most cases but showed greater variation of effect. A more consistent hypotensive effect appeared to occur in those cases showing the greater liability in blood pressure as manifested by their responses to the sodium amytal and Etamon tests.

For the most part, the duration and magnitude of the hypotensive effects of the drug were unpredictable and closely linked with toxic side effects. These toxic manifestations usually occurred with daily doses of 60 or more Craw units. Nausea and vomiting were occasionally seen without concomitant lowering of blood pressure.

The use of Veratrum viride in reducing blood pressure in chronic essential hypertension was superior to the thiocyanate regimen but suffered in comparison with use of the marked sodium depletion regimen. The combination of Veratrum and the latter mode of therapy, now under study, and the elaboration of less toxic and more hypotensive products of Veratrum viride may lead to more gratifying results in the therapy of essential hypertension.

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ABSTRACT OF DISCUSSION

DR. LESTER C. FEENER, El Paso: Veratrum viride in toxic doses will reduce blood pressure. How much it will reduce arterial pressure in doses below the toxic level has been investigated by Dr. Ruskin and his associates and found wanting in comparison with sodium depletion. To physicians who have the daily problem of therapy in arterial hypertension, this observation is of distinct value. Furthermore, most of us who have used the drug for a considerable period of time will readily agree that its toxic effects are so unpredictable that they may well preclude its use in cases of uncomplicated essential hypertension.

In defense of the drug, however, it must be said that the views held by early workers in pharmacology were misleading. The fall in arterial pressure is associated with peripheral vasodilatation and not primarily with depression of the cardiac output.

For a number of years Veratrum viride has been used as

an adjuvant in the treatment of eclamptogenic toxemia. Many will testify to its efficacy. The characteristic encephalopathy of this disease is the eclamptic convulsion. In hypertensive encephalopathy some patients have this same type of violent convulsions; for this reason Veratrum viride as an adjuvant is indicated. One might consider here that even the production of toxicity would be justified because of what might be called a medical emergency. In these cases the drug is continued until the pressure is dropped to such levels that the convulsions are relieved, and then the drug may be discontinued.

DR. RUSKIN, closing: Some of our colleagues in obstetrics believe that the use of Veratrum viride in eclampsia had run its course in 1910. Others, however, believe as we do that in acute hypertensive crises the use of any measure that rapidly reduces high diastolic pressures, such as venesection or the new preparations of Veratrum viride, is not only justified but actively indicated.

RECENT ADVANCES IN COMMUNICABLE DISEASE CONTROL

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THE decline in the incidence of and mortality from communicable diseases during the past seventy-five years constitutes probably the most striking accomplishment of preventive medicine and public health. Although many factors extraneous to public health have contributed to this decline, the main impetus has come from the coordinated hygienic attack in which medicine, biology, engineering, nursing, chemistry, and education have so effectively combined. The era has been marked by radical realignment of our basic ideas of these diseases, recognition of their communicable nature, the birth and maturation of the science of bacteriology, and the development of new scientific and administrative techniques. Striking as has been the rate of progress during these seventy-five years, no period has witnessed such rapid growth and progress as has the past decade. It is the advances of this decade that I wish to discuss.

The decade has been marked by the largest-scale war in history—a war that brought with it health problems of greater variety and magnitude than ever previously encountered. The war years have been followed by a period of stormy recovery from which we have not yet emerged. Throughout the decade, however, we have witnessed the most striking control of infectious disease that we have ever known. This control has rested on numerous, diverse factors —effective prewar control of many infections, years of fundamental research which had brought to light new procedures that could be developed and exploited under the whiplash of a national emergency, and unparalleled inter-laboratory and international cooperation whereby a vast coordinated program of research might be developed. Simultaneously our growing costs of government and changed concepts of governmental responsibilities for health protection have forced us to reevaluate our administrative practices and to discard or de-emphasize those that are the least productive. All of these elements have brought about broad changes in our communicable disease control practices.

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SULFONAMIDES AND ANTIBIOTICS

Of all the developments of this decade, that of the sulfonamides and antibiotics has undoubtedly been the most significant and far reaching in its implications and immediate effects. Over many years the mortality from several important infections, notably pneumonia, streptococcal diseases, measles, and whooping cough, had been steadily declining, the result in part of better methods of treatment and in part of long-range unknown factors that have affected the frequency and severity of these conditions. In the sulfonamides and antibiotics we have found drugs of unprecedented value either in the treatment of the specific disease or of the complications which have given to the infection its real public health significance.

Possession of effective means for reducing case fatality has given to us an altered point of view regarding the control of these infections. For years we have been searching for effective means to prevent pneumonia, streptococcosis, measles, or meningitis but have had essentially no success. We have recognized that time-honored isolation and quarantine procedures have been ineffective in reducing the total incidence, and searches for effective antigens have been singularly disappointing. In a few situations complete or partial passive immunization has afforded protection of certain contacts with measles. The pos-

session of effective therapeutic agents for either the basic disease or its fatal complications makes it possible to shift our emphasis away from futile efforts to prevent spread and to concentrate upon worth-while measures to reduce severity. For some years we have been attempting, largely through public health nursing, education, and selective hospitalization, to reduce mortality and crippling complications and have placed less emphasis on prevention. Today with the sulfonamides and antibiotics we are observing a liberalization of ineffective isolation and quarantine requirements and their replacement by active programs designed to bring to light potentially serious or dangerous infections and give them the full benefit of modern therapy. We have thus seen more effective disease control even in the absence of disease prevention.

This trend toward liberalization of isolation and quarantine measures was not initiated, however, by discoveries within the field of chemotherapy. Such measures were often of little or no demonstrable effect in curtailing the total incidence of many diseases owing to the fact that they could be applied only to the few cases that were recognized and only after recognition had occurred. The presence of carriers and missed subclinical infections and the high infection potential of cases during the prodromal period have meant that only a fraction, often less than half, of the infected persons have been subjected to isolation procedures. In a disease such as poliomyelitis it is doubtful if we often recognize as high as 5 per cent of the infectious patients. Under such circumstances there has been a growing realization that strict isolation and quarantine requirements have often tended to encourage concealment of cases with resultant lack of medical care and have worked an unwarranted hardship on a few families without compensatory effectiveness in community-wide disease control. We have, therefore, seen a growing tendency toward shortening of the unreasonably long isolation and quarantine requirements and even the complete lifting of such procedures for certain infections. So far this has been accomplished without the slightest evidence that we have thereby jeopardized the community health. On the contrary, there is good evidence that there has been substantial benefit due to our increased ability to concentrate on the truly effective measures without dissipating our energies on the ineffective.

The development of the sulfonamides and antibiotics has, of course, had significance other than its effect on shifting emphasis in communicable disease control practices. Of equal and possibly greater significance has been its effect in making available a truly effective antibacterial agent which can destroy infection within the human body, thus eliminating the chance of transfer of infection to others. For years we had been searching in vain for such agents which would be effective against the invader, yet not too toxic to the host. Control of syphilis has been built largely on a system of "chemical quarantine" which through use of arsenical preparations kept the patient noncommunicable and later cured him of his infection. In the sulfonamides and antibiotics we have drugs which not only shorten this disease and, therefore, the period of communicability, but which are also effective against a wide variety of other infections. We have acquired specific means for human disinfection in cases of gonorrhea and meningitis, and in many cases of dysentery, typhoid, brucellosis, and streptococcosis. Promising results have been obtained with tuberculosis and even with certain virus and rickettsial infections. We thus have for the first time effective means of attacking the reservoir of many important diseases. Our fondest hopes of a decade ago hardly envisioned such an eventuality.

Of equally great significance is the implication of such developments for the future. I have little doubt that our current chemotherapeutic and antibiotic agents are but the forerunners of more effective ones in the future. Streptomycin is probably of more significance as a stepping stone to more effective antituberculosis drugs than for its inherent value. Para-aminobenzoic acid, chloromycetin, and aureomycin may likewise be of greater significance as landmarks in the road of research toward more effective and more comprehensive chemotherapy than as goals in their own right.

One major disappointment in this field has marred our progress, namely, the limited applicability in chemoprophylaxis. While I recognize that there are reasonable differences of opinion on this subject, I cannot escape the feeling that evidence of well demonstrated chemoprophylactic value of these drugs is still meager at best. The use of sulfadiazine in the control of meningococcus epidemics seems well substantiated, as is also the use of sulfonamides in prevention of recurrences of rheumatic fever, but comparable use of the sulfonamides in the control of streptococcal or gonococcal infections is singularly lacking in substantiation. There is much reason for hesitancy because of toxicity following prolonged administration as well as because of the development of resistant strains. While the prophylactic use of the antibiotics seems to be less attended with such undesirable side effects, one cannot view with any degree of enthusiasm indiscriminate and wholesale prophylactic use of the antibiotics at present. It would seem shortsighted to exhaust the potential usefulness of an invaluable drug through wasting it on cases for which it is not truly indicated.

INSECT-BORNE INFECTIONS

Comparable in significance with the development of sulfonamides and antibiotics has been the progress made in the control of insect-borne infections. The social, political, and economic importance of these diseases is too well known to need discussion here. Any decade which witnessed the development of an effective vaccine, insecticide, or therapeutic agent for malaria, typhus, plague, or yellow fever would be considered notable in the path of medical progress. It is thus hard entirely to comprehend the full implications of the past decade, which has witnessed the development or effective trial of multiple measures for not one but several of these infections. In the span of but a few years our whole outlook toward these diseases has undergone radical change.

The development of more effective synthetic antimalarial drugs was not an accident. It was the fruition of a vast program of cooperative research possible only under the pressure of a war in which the success or failure of military campaigns might rest as much upon malaria control as upon ordnance or airpower. More than once have we apparently been following the will-o'-the-wisp in our belief that we had found effective and safe antimalarials that in practical doses would have true prophylactic value; would be effective against acute infection with the several strains of plasmodium; and would truly free the body from residual infection, thus eliminating the carrier condition. Our hopes in this regard have been so rudely shattered on past occasions that we must be cautious in our current evaluations. Yet it is readily apparent that even if we have not already achieved some of these goals, we have at least come much closer to them. The possibility of true reservoir control of malaria certainly seems less remote than in the past.

The development of new insecticides, and more particuuarly of D.D.T., has been of even greater significance in their value for a wide variety of insect-borne infections. An entomologic Jules Verne would scarcely have had the temerity to have envisioned the discovery that a single substance such as D.D.T. could be effective in such small dilutions and over such long periods of time against the larval and adult stages of so many insects. The wartime uses of D.D.T. as a larvicide in malaria and dengue control and as a lousicide in typhus control were no less striking than its effect as a residual spray in the control of adult mosquitoes, flies, and sandflies. Striking too was its effect in controlling plague through application to rat runs, where it would be picked up on the hair of the rodents and be lethal to flea infestation. The prevention of typhus in postwar Europe and the reduction of malaria in postwar epidemic areas such as Greece have been other significant manifestations. The only disturbing note is the recent report of the apparent development of resistance to D.D.T. by certain flies.

Of comparable significance in the control of insect-borne infections has been the progress in the development of antigens. A decade ago typhus and yellow fever vaccines were relatively untried. Today we must look upon them as two of the best and most effective antigens, useful alone or in conjunction with insect control measures. Development of vaccines for dengue and certain forms of encephalitis is worthy of at least passing reference in this rapid survey.

DISEASES OF CHILDHOOD

It is not alone in the field of insect-borne infections that new or more effective antigens have been developed. During the past decade we have obtained conclusive evidence of the value of previously developed tetanus toxoid, and whooping cough vaccine has been so well substantiated and accepted that its routine use should be incorporated in public health practice on the same basis as is diphtheria toxoid. In actual practice use of a preparation containing three antigens is finding increased acceptance.

There are, however, obvious and justifiable differences of opinion as to the details of immunization, especially as to timing. The private practitioner who can look forward to the return of his patient for booster injections may well sacrifice some measure of effectiveness and duration of resistance for the sake of beginning immunization at the earliest possible age. The health officer, on the other hand, is faced with the difficulty, if not impossibility, of booster doses before school age. Needing to save some of his limited funds, he may wisely defer community-wide initial immunization until the infant is old enough to respond in a more effective and lasting manner. Such differences in practice are justifiable and inevitable and represent practical variations in viewpoint rather than lack of agreement on basic scientific fact. In either case there is realization that the progressive decline in the incidence of these infections results in smaller reinforcing effect from exposure to the disease and, therefore, an increasing need for booster injections. We must remember that the pattern for re-immunization will inevitably vary under different circumstances of disease prevalence and may, therefore, be constantly changing.

TUBERCULOSIS

Among the antigens that have attracted increased attention in recent years, special mention should be made of B.C.G. Time is lacking even to review the

differences of opinion provoked by this topic. However, I cannot overlook the growing mass of data in this country and in Europe to substantiate the more extensive use of this vaccine, nor can I ignore the growing sentiment for its use. While we may argue as to all the circumstances under which its use is justified, I find almost universal agreement that it is indicated for groups exposed to excessively high risk of exogenous infection. I share the feeling that in this country we have overlooked an exceedingly valuable adjunct to our accepted tuberculosis control measures.

RESPIRATORY INFECTIONS

While progress in the field of new or improved antigens has been striking, there has been one major disappointment, namely, influenza vaccine. The influenza vaccines of the war years, incorporating both the A and B viruses, were undoubtedly of some value in that they definitely conferred some measure of protection for a short period. It has subsequently become evident, however, that there are strains of virus of apparently the same type yet immunologically different. It is thus apparent that a vaccine to be truly effective must be more than merely bivalent and that any vaccine prepared in advance may not be effective against the strain that is dominant in subsequent pandemics. Therefore much work needs to be done before influenza vaccination can be incorporated into the public health program although there appear to be definite though limited spheres of usefulness for the vaccines already developed.

The most serious disappointment of communicable disease control research of the past decade has been our inability to develop effective measures to limit the spread of the respiratory infections. Studies of the previous decade showing that pathogens can remain suspended in air for many hours raised serious questions as to the role of air as a vehicle for the transmission of infection. Before the answer to this vital question had been established, effective means to reduce air contamination and to disinfect air were developed. There can be no doubt that through oiling of floors and oil impregnation of bedding, the degree of air contamination can be reduced. Similarly, the disinfection of air through ultraviolet irradiation or dispersion of aerosols cannot be questioned. It has not followed, however, that application of these measures of air hygiene has produced a decline in respiratory infections comparable to the decline in gastrointestinal infection that follows proper sewage disposal and water purification. On the contrary, except under limited conditions of relative immobilization of the individual, protection from respiratory-spread disease has not resulted from measures of air hygiene.

The failure appears not to rest with the technical procedures of air disinfection but rather to be conditioned by the true role of air in the spread of infection. Sharp distinction must be made between infection spread by air indirectly from person to person and infection spread through direct respiratory association and exchange. It would appear that for the person with lowered resistance and sharply limited contacts or for certain special viruses under special conditions, the small number of organisms in the air may be of epidemiologic importance and that disinfection may, therefore, have protective value. There is lack of evidence, however, that this same amount of most common pathogens may be significant for the healthy person circulating freely in the community and having free and close respiratory association with many other persons. We have no evidence as yet that currently available measures of air hygiene are effective in the general control of respiratory diseases, apparently because the role of air as a true vehicle of infection appears to be slight.

CONCLUSIONS

This review of recent advances in communicable disease control has of necessity been brief. In general it has been an account of discoveries or developments which have added immeasurably to our armamentarium. Never have we been so well equipped to deal with these conditions and never have we seen within a few years such valuable additions to our control measures. It has been an exciting decade that has unfolded before us vast opportunities for control of some of the most important diseases of mankind. It is to be hoped that we may have the vision and courage to apply these discoveries.

Metal Curlers May Cause Baldness

Women who consistently use metal curlers on their hair or wear it in tight braids may develop bald spots above the ears, write three Los Angeles doctors. In the December issue of the *Archives of Dermatology and Syphilology*, Drs. Samuel Ayres, Jr., Samuel Ayres, III, and Joseph I. Mirovich reported 5 cases of such baldness. Three of the women had been using metal curlers and 2 had been wearing their hair pulled away from the ears and braided tightly.

Hawley to Direct College of Surgeons

Dr. Paul R. Hawley, Chicago, has resigned his position as chief executive officer of the Blue Cross and Blue Shield Commissions to become director of the American College of Surgeons, effective March 1. However, he will retain the presidency of Blue Cross' Health Service, Inc. Dr. Hawley will succeed Dr. Malcolm T. MacEachern, who as director emeritus will supervise the program of hospital standardization.

MUMPS: RECENT ADVANCES IN DIAGNOSIS AND CONTROL

ELIAS STRAUSS, M.D., Dallas, Texas

MUMPS is one of the oldest of human diseases. The clinical picture of a brief prodromal fever, painful swelling of the parotid and other salivary glands, and orchitis was described in the writings of Hippocrates. Until recently there was nothing more to add. In the past fifteen years, however, and more particularly in the past five or six years, new information with regard to the etiology, laboratory diagnosis, clinical manifestations, and possible methods of prevention of this disease has accumulated rapidly. It is the purpose of this review to indicate briefly the present state of information concerning mumps.

ETIOLOGY

In 1934, Johnson and Goodpasture inoculated saliva from a case of mumps into the parotid ducts of monkeys and produced parotid swellings resembling mumps in man.[12] The infection was maintained by serial passage in monkeys; later bacteria-free suspensions of infected monkey parotid glands, after filtration through Berkefeld candles, were found capable of reproducing the disease again in man. The virus etiology of mumps was thereby established.

The monkey is a difficult and costly animal with which to work and further progress in research was necessarily slow until 1945. At that time Habel[7] and Enders[15] succeeded in propagating the virus in the yolk sacs and amniotic fluids of fertile hens' eggs. This discovery permitted investigators to grow the virus easily and cheaply and led to a rapid accumulation of information concerning the properties of the virus.

ANTIBODIES

After an attack of mumps a large number of different antibodies can be demonstrated in the blood of the convalescent patient. Enders was the first to demonstrate that infected monkey parotid glands contain sufficient mumps virus so that this tissue, when suitably prepared as an emulsion, can serve as an antigen in complement-fixation tests.[3] Serum taken from a patient two weeks after the onset of mumps fixes complement in high dilution in the presence of such an antigen; serum obtained during the acute stage of the disease does not. As with all complement-fixation tests, a rise in the level of antibodies during convalescence, as compared with the initial level, is of particular diagnostic significance. When it was observed that mumps virus could be grown in eggs, the infected amniotic fluids served as a more convenient and readily available source of antigen for complement-fixation tests. Such tests, using commercially available mumps virus grown in eggs, can be carried out in any laboratory equipped to perform Wassermann or other complement-fixation tests. By the usual technique antibodies to the complement-fixing antigens are not demonstrable in all cases until two weeks after onset; thus the test is useful mainly for retrospective diagnosis. Recently the complement-fixing antigen has been found to contain two components; one, a soluble fraction, induces an earlier antibody response, often within one week after the onset of illness, and thus may be more useful in diagnosis.[9]

Grown in the amniotic fluid of eggs, mumps virus, like influenza virus, has the property of agglutinating chicken or human erythrocytes. This hemagglutinative factor is antigenic; during convalescence the patient's serum contains an antibody which, when mixed with mumps virus, inhibits the subsequent agglutination of erythrocytes added to the system.[15] Tests for hemagglutinative inhibiting antibodies are performed by the same technique now widely used for the serologic diagnosis of influenza. For the diagnosis of mumps, however, this test is not so well standardized as the complement-fixation test.

Enders has also studied a third type of antibody which is concerned with skin hypersensitivity. If a mumps antigen prepared from infected eggs or monkey parotid glands is injected intradermally in a person who has had mumps, a positive skin test is elicited. A positive reaction consists of an area of redness in excess of 1 cm. in diameter, with or without induration, appearing after an interval of from twenty-four to forty-eight hours. This reaction thus resembles the tuberculin test and is an example of the delayed type of dermal sensitivity. Since the skin test does not become positive until several weeks after an attack of mumps, it is not as useful for diagnosis; for epidemiologic investigations, however, it has yielded information of considerable value.[4]

EPIDEMIOLOGY

Application of these newer diagnostic tools has extended the physician's knowledge of the epidemiology of mumps. Although mumps is regarded as one of

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the commonest diseases, only about 60 per cent of adults give a history of a clinically recognized attack of mumps; in contrast, 90 per cent give a history of measles. However, when large groups of adults are tested for complement-fixing antibodies and by skin testing (the latter is easier and more informative for this purpose), about 80 per cent yield evidence of having had the disease. It is apparent, therefore, that infection with mumps, like measles, is almost universal but that mumps can occur in a form so mild as to be clinically inapparent. Enders and Stokes and their collaborators[17] were able to show that in a group of 78 persons who were exposed to mumps but failed to develop a recognizable illness, 40 per cent nevertheless subsequently exhibited an antibody response indicative of infection. Such inapparent infections lead to durable and permanent immunity. Second attacks of mumps, while they undoubtedly occur, are distinctly rare. Moreover, the popular belief that an attack of mumps involving only one parotid gland leaves the subject susceptible later on to another attack involving the other gland is not substantiated by careful observation. The permanence of immunity is not related to the severity of the clinical illness.

The average incubation period of mumps is eighteen days, with the variation usually stated as being from fourteen to twenty-one days. A person is believed to be infectious forty-eight hours before glandular swelling appears and for perhaps a week after the appearance of swelling. Monkey transmission experiments indicate that human saliva is not infectious for more than three days after onset. Whether or not a patient in whom the swelling progresses to involve the parotid, submaxillary, and sublingual glands, one after the other, remains infectious during the whole period is not known. It is probable that the quarantine restrictions generally imposed are too rigid, but further exact data will be required before modification of these regulations can be advocated. The mode of transmission of mumps is believed to be by air-borne droplets from the mouth and throat and by contamination of toys and other objects with oral secretions. Whether or not saliva is the only infectious material is not known. Patients who exhibit no parotid or salivary gland swelling are also capable of transmitting the infection to others.

Henle and his co-workers[10] recently have contributed further information with regard to the epidemiology of mumps by observing the results of experimentally infecting 15 susceptible children. Living mumps virus was sprayed into the mouth and after an incubation period of from fourteen to nineteen days, 4 children developed parotitis, 2 showed signs of involvement of the submaxillary glands, and 1 came down with orchitis as the only manifestation of illness. Eight children remained clinically well. All subjects, however, exhibited a prompt antibody response, even before the onset of illness. These observations confirm the frequency of asymptomatic infection.

The mumps virus was recovered from the saliva of these subjects as early as six days prior to the onset of symptoms and up to four days after the development of symptoms. The patient with orchitis and the children who remained well also had virus in the saliva. The infectious agent therefore can be transmitted by apparently well persons.

CLINICAL PICTURE

In recent years, partly as a result of advances in laboratory diagnosis, the clinical picture of mumps has broadened considerably. Mumps should no longer be thought of as a local infection of the salivary glands, occasionally complicated by orchitis, pancreatitis, and so forth. Rather, the modern concept is that of a generalized systemic disease which may be manifested clinically by involvement of many organs in the body, particularly glandular tissue and the central nervous system. These other manifestations are not to be regarded as complications but as essential features of the disease itself. The recent report of the recovery of mumps virus from the bloodstream of a patient in the early stages of parotitis lends further emphasis to the systemic and generalized nature of the disease.[14]

Although involvement of the brain and meninges during the course of mumps has been recognized for years, only recently have physicians come to realize that central nervous system involvement is not a rare complication but a common feature of the disease. That central nervous system involvement is actually caused by the mumps virus is proved by recent reports of its easy recovery from the spinal fluid in 5 out of 7 cases.[8, 14]

The frequency of brain and meningeal involvement in mumps is not established. In the older clinical literature the diagnosis of mumps meningo-encephalitis was not made until obvious clinical signs appeared; hence the incidence is reported as varying from 10 per cent to less than 1 per cent. However, when routine lumbar punctures are performed in cases of mumps, regardless of the severity of meningeal or encephalitic symptoms and even in their absence, it is observed that more than 25 per cent of patients will have an increased number of cells in the spinal fluid.[11] Studies of this kind have been done mostly on adults in military service; whether the same incidence would be found in children has not been established.

Meningo-encephalitis may precede, accompany, or follow parotitis or orchitis, or may occur in the ab-

sence of any other manifestation of mumps.[2] Usually the nervous system symptoms become evident within a week or ten days after parotitis; they have been known to occur as late as twenty-eight days after parotitis or orchitis. Meningo-encephalitis may also precede other manifestations of mumps by a few days or a week. In addition, and this deserves particular emphasis, involvement of the nervous system may occur in a person who never manifests any other sign or symptom of mumps.

The clinical picture of mumps meningo-encephalitis is variable. In the mildest instances there may be only headache and slight nuchal rigidity for a day or two. More often there is fever, even up to 105 F., with headache, nuchal rigidity, nausea, vomiting, and abdominal pain. In exceptional instances, signs of encephalitis, such as stupor or coma, twitchings, convulsions, and the Babinski sign, may be evident. In all cases, the prognosis is good. Mumps is one of the most benign of the virus encephalitides. The course of the illness is brief, usually less than ten days; in fact a longer duration suggests an infection other than mumps. Complications are unusual. In extremely rare instances, mumps may produce nerve deafness, labyrinthine involvement, or facial nerve palsy.

The spinal fluid may be under increased pressure. Bacterial cultures yield no growth. The protein content of the spinal fluid is either normal or moderately increased but rarely exceeds 100 mg. per 100 cc. of fluid. The cell count, however, is generally elevated, varying from a few cells up to one or two thousand per cubic millimeter; almost all cells are lymphocytes. In a recent series of proved cases of mumps meningo-encephalitis the average spinal fluid cell count was 400 per cubic millimeter of fluid.[13] The sugar concentration, Wassermann reaction, and colloidal gold curve are normal. The pleocytosis may persist for a period of several weeks, long after clinical recovery.

It is evident that such a clinical picture and spinal fluid findings may pose a difficult problem in diagnosis, particularly when there are no other manifestations to suggest mumps. The observations described are typical of that large and heterogeneous group of infections of the nervous system which are grouped together as "acute aseptic meningitis." Among specific infectious agents which may produce such a picture are lymphocytic choriomeningitis, infectious mononucleosis, poliomyelitis, equine encephalitis, St. Louis encephalitis, herpes simplex, and lymphopathia venereum encephalitis. Tuberculous and syphilitic meningitis and other infections also have some features in common. Mumps is actually one of the more common causes of "acute aseptic meningitis."

In cases of this type the laboratory can be of great help. The simplest diagnostic procedure is to submit blood samples taken early in the illness and two weeks after onset. A rising titer of complement-fixing or hemagglutinative-inhibiting antibodies is diagnostic of mumps meningo-encephalitis. This disease should be suspected in any sporadic case of aseptic meningitis and particularly when mumps is known to be prevalent in the community.

The other clinical manifestations of mumps are too well known to require more than brief comment. Involvement of the parotid, submaxillary, and sublingual glands, singly or in combination, is usually present. Nausea, vomiting, and abdominal pain suggest involvement of the pancreas. Hyperglycemia and transient disturbances of carbohydrate metabolism may be detected in some cases by appropriate tests. However, diabetes as a sequel of mumps is exceedingly rare. A rise in serum amylase suggests pancreatitis, but it is to be remembered that parotitis itself may produce such an abnormality.[1] Oophoritis is unusual in mumps. Orchitis and epididymitis, on the contrary, occur in 25 per cent of cases in adult males. Fear is commonly expressed that mumps orchitis may lead to sterility. In fact, however, such a sequel is almost unknown since the orchitis is usually unilateral and if bilateral does not lead to complete atrophy of the testicular tissue.

TREATMENT AND PREVENTION

The treatment of mumps remains symptomatic. No chemotherapeutic or antibiotic agent has yet been reported to be of value. Convalescent serum, gamma globulin, and other blood products containing immune bodies have been administered to patients with parotitis in an effort to prevent orchitis and meningitis. The only suggestion of success which has attended these efforts is the report of Gellis and his co-workers that concentrated gamma globulin derived from convalescent serum, when administered to patients with parotitis, lessened the incidence of subsequent orchitis.[6] Unfortunately, this product is not commercially available.

Attempts have been made to prevent mumps by both passive and active immunization. Passive immunization is accomplished by the parenteral administration of from 5 to 20 cc. of serum obtained from a recently convalescent patient. The serum must be given within a few days after exposure. Such passive immunity is transient and does not last for more than a few weeks. Furthermore, it is not wholly dependable and even large doses may fail to prevent the disease.[16]

For these reasons, techniques for active immunization against mumps are now under study. It has been demonstrated that virus grown in monkey parotid glands or in the amniotic fluid of hens' eggs, inactivated by ether, formalin, or ultraviolet light, will produce active immunity when injected into susceptible

subjects.[18] The duration of such immunity is unknown but is not believed to be permanent. More recently, Enders has discovered that repeated passage of mumps virus through eggs results in attenuation of the agent so that it no longer produces parotitis in monkeys although its antigenicity is retained. Such attenuated but living virus renders the monkey solidly immune to reinfection.[5] General experience with viruses suggests that such a virus (analogous, for example, to vaccinia) might produce solid and permanent immunity in man. So far only preliminary studies of this nature have been attempted in human beings. There is reason to hope, however, that in the future a practical procedure for active immunization against mumps may become available.

SUMMARY

The virus of mumps can be propagated in monkeys and in embryonated hens' eggs. Complement-fixing, hemagglutinative-inhibiting, and dermal sensitivity antibodies are demonstrable in convalescent, immune subjects. By the use of these laboratory techniques more precise epidemiologic information has been acquired, particularly with regard to the frequency and importance of asymptomatic infections. Mumps is now regarded as a generalized systemic disease. It is a common cause of benign acute aseptic meningitis and encephalitis. Techniques for active immunization against the disease are under study and offer promise of future success.

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ABSTRACT OF DISCUSSION

DR. J. M. COLEMAN, Austin: It is strange that mumps, which has been known for so long and which has been so lightly regarded, may open new doors in virus research to explain many serious problems of virus disease.

Recently, at the American Academy of Pediatrics meeting in Atlanta, I heard Dr. Stokes discuss the works of Dr. Enders and others in his department. I gained the impression that in the examination of blood samples if one finds an antibody response to the soluble fraction of the complement-fixing antigen and none to the other fraction, he may hypothecate that a mumps infection is in process and that the second reaction will become positive during convalescence; if there are reactions to both fractions he may assume that there was prior infection, with convalescence well along or completed. Such information should enable the physician to offer a better prognosis where a meningo-encephalitis proves to be caused by mumps, since this type is said to produce fewer residual symptoms.

I would like to stress the remarkably high incidence of inapparent infections as determined by antibody response; almost one-half of the cases occur without subjective or objective signs if the laboratory studies are eliminated. To date, the mumps virus has remained simple without subtypes being described; therefore, second attacks must be assumed to be the result of the inherent inability of a patient to develop antibodies, as in some bacterial infections, or of overwhelming doses of infecting material. One patient in my own practice has confounded me by three apparently typical attacks of mumps during the past two years, first one parotid gland, then the other being involved, and again the first.

Among reported manifestations of mumps are orchitis, oophoritis, pancreatitis, mastitis, thyroiditis, thymus involvement, dacryoadenitis, prostatitis, bartholinitis, epididymitis, cranial neuritis, meningitis, encephalitis, conjunctivitis, scleritis, keratitis, uveitis, optic neuritis, retinitis, and occular palsies. Lippman has reported one of the few cases of keratitis associated with mumps. It has been said that 5 per cent of deaf mutism is traceable to mumps. The presence of pleiocytosis in 25 per cent of routine lumbar punctures on cases of mumps gives evidence of the importance of the disease. There is some disagreement on the management of orchitis, Wesselhoeft and others tending to use incision of the tunica vaginalis to release pressure on the testis with immediate dramatic relief of pain and apparent conservation of function. Whether the diabetic-like disturbance of sugar metabolism associated with mumps pancreatitis tends to persist, thus making mumps an etiologic factor in diabetes, is questioned. It has been said, however, that in pre-insulin days diabetic mortality increased in epidemic years of mumps.

Dr. Stokes in his report was conservative but gave the impression that progress is being made in the use of attenuated virus sprayed into the oropharynx for prevention of mumps. There is also a possibility that the skin test itself may induce immunity. It is too early to speculate how wide the use of such vaccine in pediatric practice might be because of the tendency to underestimate the hazards of the disease. Certainly there would be little difficulty in convincing adults because fear of orchitis and oophoritis is so widespread.

CHRONIC RESPIRATORY DISEASES IN INFANTS AND CHILDREN

Value of Roentgen-Ray Therapy

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THE beneficial effects of roentgen-ray irradiation upon the many forms of acute and chronic inflammatory diseases and infections have been known and used by radiologists and physicians for many years. Prior to the discovery and the use of the sulfonamides and the various antibiotic substances (penicillin, streptomycin, and so forth), roentgen-ray therapy was widely used, but in recent years there has been a great tendency to forget such therapy, even when the sulfonamides and the antibiotics fail or are contraindicated.

Some of the many inflammatory conditions that are favorably influenced by the roentgen rays are as follows: furuncle, carbuncle, erysipelas, lymphadenitis, cellulitis, subacute and chronic respiratory infections, otitis media, mastoiditis, sinusitis, onychia, paronychia, gas bacillus infection, pneumonia, peritonitis, pelvic inflammatory disease, and a host of skin affections which have an inflammatory basis.

It is the purpose of this paper to call attention again to the use of roentgen-ray therapy in certain conditions in infants and children wherein the sulfonamides and the antibiotics fail or wherein the prolonged use of such agents are not warranted or may be contraindicated.

Schenck[13] and Desjardins[3], more than any other American radiologists, have been responsible for emphasizing the good results of radiation therapy in inflammations and infections. More recently Uhlmann, Rosenblum, and Perlman[16] have been using this therapy instead of surgery for the treatment of chronically diseased tonsils and adenoids.

Opposition to roentgen-ray therapy has been based upon the erroneous belief that irradiation produces systemic reaction and usually damages the skin and surrounding tissues. Although these effects are not uncommon in the treatment of malignant tumors where maximal doses must be given, tissue damage and radiation sickness are unknown when treating inflammatory processes for which large doses are not needed and are contraindicated. Some physicians also believe that even the smallest doses of roentgen ray have some deleterious effect upon the various endocrine systems. These fears are unfounded, and roentgen-ray therapy in inflammations and infections is an effective and safe procedure based upon extensive experimental evidence and long clinical experience. When roentgen ray is used by capable and experienced radiologists, there is no possibility of damaging effects. It must be stated that when irradiation therapy fails to affect the inflammatory process favorably, it will have no effect at all.

It must be remembered that roentgen-ray technique is no longer an arbitrary or empiric factor, with fixed dosages established for each disease. Each patient must be individualized and the technique employed altered to suit the disease and the patient, each being based upon the good judgment and previous experience of the radiologist and the clinician.

Heineke in 1905, Warthin in 1906, Pordes in 1923, 1924, and 1926, Fox and Farley in 1923, May and Holfelder in 1923, Fried in 1927, Desjardins[3] and Webster in 1932, and others have explained and proved the mechanism and action of roentgen ray upon inflammatory processes and the various tissues of the body. It is an established fact that the different body cells react in the following order to roentgen therapy: (1) lymphoid cells, (2) polymorphonuclear leukocytes and eosinophils, (3) epithelial cells, (4) endothelial cells, (5) connective tissue cells, (6) muscle cells, (7) bone cells, (8) fat cells, and (9) nerve cells. Respiratory tissue is radioresistant. Excessive doses may cause a reactive pneumonitis which may resolve or go on to fibrosis.

Characteristic of all inflammations and infections is the infiltration of leukocytes which tend to wall off the process. Irradiation in small or moderate doses acts on the infiltrating leukocytes, causing their early

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destruction. In this way the enzymes, ferments, and other protective substances locked up within the cell are liberated and made immediately available for defensive purposes.

Because the round cell infiltration is looked upon as nature's wall of protection, the roentgen rays in destroying these cells seem to produce an undesirable rather than a favorable reaction. According to Desjardins,[3] Webster, and Leavett in 1932, this seemingly adverse effect is overshadowed and minimized by the inundation of the inflamed area with the neutralization substances liberated by the leukocytic destruction.

Irradiation increases congestion, cellular infiltration, exudation of fluid, phagocytosis, and leukocytic destruction not only of the surrounding round cell infiltrate, but also of the circulating and exudative cells rushed to the affected area by the dilatation and engorgement of the blood vessels and lymph stream, thus promoting the liberation and stimulation of enzymes, antienzymes, and ferments. The effect of the roentgen ray is to augment the inflammatory process. In this way roentgen ray speeds up the stages of inflammation and brings about its early termination. In the absence of suppuration the process will go on to early absorption and complete resolution. On the other hand, if suppurative foci, however minute, are present, rapid liquefaction and centralization of pus occurs. This localization halts the tendency to spread. The speeding up of the inflammatory stages which leads to an early termination of the disease process can be accomplished by small or moderate doses of roentgen rays because of the radiosensitiveness of the infiltrating and circulating leukocytes.

In subacute and chronic infections there is less infiltration of leukocytes and less inundation of circulating cells than in the acute processes. The effect of irradiation therapy remains unchanged, but because of the reduction in the inflammatory reaction the dosage must be greater and the time limit longer than for acute cases.

From January 1, 1946, to June 30, 1948, we had occasion to give roentgen-ray therapy to 341 infants and children ranging from the age of a few weeks to 15 years. These patients had chronic respiratory diseases which had not responded to the sulfonamides and/or antibiotics, or were children who we thought had received too much or too prolonged medication without proper results or in whom the offending organisms had become penicillin or sulfa resistant. These were clinical observations backed by laboratory studies. All children in this series had complete laboratory or hematologic studies. The best results in roentgen-ray therapy go hand in hand with leukocyte counts above normal and with temperature 100 F. or lower. The higher the leukocyte count in the absence of fever the better the roentgen-ray results. We do not use roentgen-ray therapy when the temperature is above 101 F.

RECURRENT UPPER RESPIRATORY TRACT INFECTIONS

Rathbone[11] has stated that the ideal type of case for roentgen therapy is the child with a diffuse lymphoid hyperplasia throughout the nose and throat with a watery, mucoid, or pustular nasal discharge; a history of frequent colds; a chronic cough; and clinical or roentgen-ray evidence of hyperplasia of the mucosa in the antrums and ethmoids. Such cases are nearly always helped with irradiation therapy. Of our patients, 137, or 41 per cent of the total (table 1), were of this type. Seventy-five per cent still had their tonsils and adenoids. The clinical histories in these children were classic: The child had had colds and sore throats, one after another, every three to five weeks for the last several months to two or three years. He had swollen glands, a running nose, a cough day and night, fever of varying degrees, vomiting, loss of appetite, poor weight gain, and marked irritability. He had had numerous injections of penicillin, a number of doses of sulfa drug, bottle after bottle of nose drops and cough syrup, inhalations and vaporizations by the dozen, and so on through the gamut of therapeutic measures, none of which continued to be effective. Most of the parents were harassed mentally, physically, and financially. The result of physical examinations and laboratory studies were in keeping with the symptoms: large boggy tonsils and adenoids with varying degrees of redness, enlarged tender cervical glands, red or dull ear drums, nasal secretions of varying color and consistency, and a chest filled with loud, coarse, and fine ronchi and miscellaneous wheezes and whistles. The cough ran the scale from tight to croupy. The patient had varying degrees of secondary anemia and leukocytosis above the normal of from 10,000 to 12,000 white blood cells per cubic millimeter of blood.

TABLE 1.—*Diseases Treated with Roentgen Ray.*

Clinical Diagnosis	No. Cases	% of Total	Improved	Not Improved
Recurrent upper respiratory tract infection with cervical adenitis*	137	41	110 (80%)	27 (20%)
Chronic nonspecific bronchitis†	117	35	90 (77%)	27‡(23%)
Allergic bronchitis, (asthma)	57	15	50 (87%)	7 (13%)
Chronic sinusitis	30	9	20 (65%)	10§(35%)
Total cases	341	100	279 (79%)	71 (21%)

*75% had their tonsils and adenoids intact.
†25% had their tonsils and adenoids intact.
‡11 cases of parapertussis.
§5 improved with radium therapy.

Our policy, in general, depending upon the severity of the disease, was to stop all medication except nasal

suction; .25 per cent Neosynephrin Hydrochloride nose drops; inhalations or vaporizations of medicated steam; tonics containing iron, liver, and vitamin B complex, and roentgen-ray therapy. A complete blood count was made.

Eighty per cent showed clinical improvement in from one to five weeks; 10 to 15 per cent showed some exacerbation of symptoms after the first treatment, rarely after subsequent treatment. The cervical adenitis responded most quickly, usually subsiding in from twenty-four to seventy-two hours, though a few less than 5 per cent went on to suppuration, requiring incision and drainage. Schenck[12] and others have reported as high as 85 per cent good results in these cases.

The good results are accomplished by rapid reduction in the size of the lymphoid elements in the nose and throat, promotion of better drainage, increasing the diameter of the respiratory airways, and increasing the blood and lymph supply to the area. We found that many of these children respond well to sulfonamides and penicillin after roentgen-ray therapy, whereas previously they showed little or no response. We do not advocate roentgen-ray therapy as a substitute for removal of the tonsils and adenoids, or other types of surgery when indicated. However, the extremely large, boggy tonsil and adenoid tissue (subacutely and chronically infected) will respond rapidly and well to roentgen-ray therapy, and clinical improvement lasting from three to twelve months will result.

Irradiation therapy is indicated in chronic sore throat and pharyngitis where surgery is contraindicated, such as in hemophilia, diabetes, nephritis, tuberculosis, and certain cardiovascular diseases, and also in those children who have had tonsillectomies, and who have had not only a recurrence of lymphoid tissue in the nose and throat, but also repeated head colds, constant sore throat, chronic harassing coughs, and so forth. For children having deafness or impaired hearing in the above groups, radium therapy is better than roentgen-ray treatment.

CHRONIC NONSPECIFIC BRONCHITIS

Repeated upper respiratory infections not infrequently produce a chronic nonspecific bronchitis in children. Bronchitis is more frequently seen in children who have had tonsillectomies than those with their tonsils but it occurs in both. The cough is spasmodic and more pronounced at night, is nonproductive, is uninfluenced by various medications, and frequently leads parents and physicians to suspect tuberculosis. Roentgenograms reveal enlarged mediastinal and hilar adenopathy with or without prominent bronchial markings. The pressure of these glands on the bronchial tubes produces the symptoms. Schenck[14] claimed spectacular results in these cases. In our series of 117 patients relief was obtained in 77 per cent. Twenty-five per cent still had their tonsils and adenoids. It is of interest to note that 11 of our 27 failures were in children who had no chest adenopathy but who presented the clinical picture of parapertussis or pertussis. The majority of these children as infants had had routine pertussis immunizations and failed to respond to adequate dosage of human hypertussis or rabbit antipertussis serum. The tonsils and adenoids in the majority of the 25 per cent were small, embedded, and fibrotic.

ALLERGIC BRONCHITIS

Many cases of allergic or asthmatic bronchitis respond favorably to a series of irradiation treatments. Irradiation should be employed as an adjunct to other measures or when all other forms of treatment have failed. It has proved effective in status asthmaticus after every other remedy has been tried. Ramirez and Cole[10], Gerber[7], Maytum and Leddy[9], McEachern[8], Feinberg[6], Balyeat[1], and Chont[2] have reported improvement lasting from a few weeks to several months

TABLE 2.—*Age Group Treated with Roentgen Ray.*

Age Group	No. Cases	% of Total	Improved	Not Improved
1 to 12 months*	103	30	87 (86%)	16 (14%)
1 to 3 years*	88	26	71 (81%)	17 (19%)
3 to 6 years†	89	26	70 (79%)	19 (21%)
6 to 10 years†	52	16	35 (67%)	17 (33%)
10 to 15 years	9	2	6 (65%)	3 (35%)
Total cases	341	100	269 (76%)	72 (24%)

*100% had their tonsils and adenoids intact.
†Over 80% had their tonsils and adenoids removed.

in more than 50 per cent of the cases treated. Balyeat[1] stated, "Such therapy controls the low grade secondary infection, promotes bronchial drainage, and reduces bronchial adenopathy. Those cases having elevated leukocyte counts respond the best. The beneficial effect of roentgen therapy parallels the decrease in leukocytes."

Eighty-seven per cent of our 57 cases responded well to irradiation therapy (table 1). Thirty-one of the 50 showing response have been receiving roentgen-ray therapy once or twice yearly and results have ranged from good to marked. It is our feeling that asthmatic patients adequately controlled through vaccine, diet, elimination of environmental factors, and so forth, are almost always helped by periodic irradiation. Of 7 failures in our series, 5 were in children who took no other form of treatment or who did not keep up their vaccines and other therapy.

CHRONIC SINUSITIS

We were not pleased with the results in the treatment of chronic sinusitis (table 1). Our series is small, and each of our 10 failures in addition to

chronic sinusitis had chronic mastoiditis, with one or both ears involved. Two of the 10 had cholesteatomas, and we believe that they came to us in the false hope that they would not have to be subjected to radical surgery. All these patients had had tonsillectomies prior to seeing us.

Schenck[15] stated that roentgen-ray therapy is the treatment of choice in children with subacute and chronic sinusitis, and cures are obtainable in 85 per cent of the cases, as evidenced by the disappearance of symptoms and in a large majority by the clearing up of the pathologic condition in the sinus in checkup films. His cured cases improved immediately after radiation and remained so for from one to three and one-half years.

Rathbone[11] clearly defined the indication for radiation therapy in subacute and chronic sinusitis: "Roentgen therapy is not a panacea for sinus disease; however, in selected cases the results have been very good. It is a safe method that can be used in infants as well as children." He did not recommend treatment with frank pus in the nose, unless the roentgen-ray films and clinical examination show a diffuse lymphoid hyperplasia throughout the nose and throat, the temperature is low, and the leukocyte count elevated. The ideal case for roentgen-ray therapy is the one with watery or mucoid nasal discharge, history of repeated colds, a chronic cough, and roentgen-ray evidence of hyperplasia of the mucosa of the antrums or ethmoids.

TABLE 3.—*Quantity of Roentgen Ray Given Per Case.*

Amount of Roentgen Ray	No. Patients	% of Total
3 treatments (1 series)	272	79
5 treatments (1 series)	69	25
2 series (in 6 to 18 mo.)	113*	33
3 or more series (biyearly)	31†	

*Includes 71 patients (26% of total) who returned unsolicited for second series in from 6 to 12 months because of good results.
†Patients with allergic bronchitis, of whom there was a total of 57.

AGE GROUPS

Table 2 shows clearly the age groups treated in our series of cases. It was one of our purposes to see if there was any correlation between the results obtained in the diseases treated (table 1) and the age group treated (table 2).

Our good and bad results checked within reasonable percentages of each other: Seventy-nine per cent improved in the disease classification, 76 per cent in the age group classification; 21 per cent not improved in the disease classification, 24 per cent in the age group classification.

Our best results were obtained with radiation therapy in the age group still having tonsils and adenoids (that is, lymphoid tissue), 82 per cent being under 6 years of age. Frankly, we believe that many of our patients would have faired equally as well if their hypertrophic lymphoid tissue had been removed. Such a statement opens up age-old controversy as to when (at what age) and why tonsils and adenoids should be removed. We think that tonsils and adenoids should be removed at any age if the child has repeated sore throats, colds, tonsillitis, otitis media, sinusitis, and enlarged cervical nodes; fails to gain weight; presents a history of tuberculosis, rheumatic fever, chorea, or nephritis; or is a diphtheria carrier. Tonsillectomy and adenoidectomy should be done between infections. Simple hypertrophied tonsils without persistently enlarged cervical nodes, unless causing obstruction, are not sufficient indication for surgery.

Parents of the children under 3 years of age were of the opinion, as were their eye, ear, nose, and throat doctors, that the children were too young for removal of tonsils and adenoids and that the tissue might grow back. They were still unbelievers, despite all arguments and indications that the whole picture was of chronically infected lymphoid tissue. After their children were 3 years of age, most parents consented to the operation. It is our opinion that most children under 3 years needing surgery are doomed to ill health and repeated infections of the upper respiratory tract, both subacute and chronic.

We are sure that in addition to relieving the symptoms in the age groups under 3 years, roentgen-ray therapy likewise reduced the morbidity and prevented a multitude of serious complications. The results of Uhlmann, Rosenblum, and Perlman[16] with roentgen-ray therapy parallel our experience.

NUMBER OF TREATMENTS

Of our cases 272 or 79 per cent received but one series of treatment, or three doses of roentgen ray (table 3). Sixty-nine or 25 per cent received five doses of roentgen ray in one series. Seventy-one patients or 26 per cent of the total series returned in from six to twelve months asking for repeat treatment. These were unsolicited and came because of the excellent results from previous therapy. Forty-four or 13 per cent of the total cases were given a second series in from six to eighteen months on our advice. Thirty-one of the 57 patients with allergic bronchitis have received yearly or biyearly dosages of roentgen ray as a part of their treatment for allergy. Each has had three or more series of treatment to date with no apparent deleterious effects.

TECHNIQUE

The technique for irradiation of these conditions is the same as that which we use for most inflammatory lesions—intermediate voltage with moderate filtration. We have tried and discarded 200 to 220 kilovolt therapy with heavy filtration in this type of condition and we have settled upon 140 kilovolts

with a filter of .25 mm. of copper and 2 mm. of aluminum as being the optimum, using 20 milliamperes and 50 cm. distance. The dosage is 100 to 150 r per treatment, depending upon the acuteness of the infection, age of the patient, and so forth. Generally speaking, infants and small children younger than from 8 to 10 years will receive 100 r per dose, and larger children and adults 150 r, the increased dosage being based upon the idea that more tissue must be penetrated in the larger person and that there is more tissue resistance in the older patient. The spacing of these treatments depends upon the acuteness of the condition. For the acute infections a second treatment is given two or three days after the first, and a third a week after the second. Occasionally, depending upon conditions, a fourth is given a week later. For the allergic and chronic bronchitis patient the treatments are spaced from five to seven days apart, giving three to six doses, depending upon the response. It is our contention that heavy dosage is not needed, and that if six treatments have not favorably influenced the disease, irradiation should be discontinued as a failure. With dosages such as we use, the series can be repeated at from four- to six-month intervals without running into any danger from over-irradiation. No ill effects have been seen over a period of several years in following this regimen.

This routine is followed for the younger children with a chronic or subacute condition of the predominantly "bronchial" type. In those cases in which there is an acute throat infection with cervical adenitis we vary the treatment, giving a dose of 100 r in small children, 125 to 150 r in larger, over each cervical area, cross-firing so that the throat comes into the beams in each instance.

The problem of immobilization is difficult to solve. Padded boards have been devised whereby the child can be strapped down and held during the treatment, but we have found in private practice that the average mother resents having her offspring handled in such a manner, regardless of how careful the physician is. No doubt this type of fixation can be used in larger places where the mother is not present, or in charity institutions. We place the child on his back with a sandbag against each side of his head and shoulder, with a lead-rubber shield covering his abdomen from the costal margin downward. If the child is uncooperative, the arms are held extended upward alongside the head, thus keeping the head straight on the table, and the feet and legs are held by another person. There is almost always a friend with the mother or father, and the parent feels better if the unruly child is held by him rather than by a stranger. A square or rectangular cone is used, one corner extending up over the nasal area, the rest covering the mouth, throat, and upper part of the chest. Needless to say, with this method a shockproof machine must be used. We have used no protection for the thyroid or parathyroids. The danger of influencing these glands with this dosage is in our opinion minimal, and the experience of many years has borne this supposition out. Protection with the lead-rubber apron should be given the liver, spleen, and gonads.

In the older child with more sinus development and with a definite sinus symptomatology an additional exposure may be required. The eyes are covered with small lead shields and the sinus tract is irradiated with a small cone. In addition, treatment is given over the bronchial area, either in the anteroposterior or postero-anterior position.

CONCLUSIONS

Roentgen-ray therapy is a valuable adjunct in the treatment of certain subacute and chronic respiratory diseases, namely, recurrent upper respiratory infections with cervical adenitis, chronic tonsillitis and adenoiditis, chronic nonspecific bronchitis, allergic or asthmatic bronchitis, and subacute and chronic sinusitis.

Roentgen therapy seems to be particularly indicated in those children with chronic respiratory disease which have failed to respond to the sulfonamides and/or antibiotics. Best results are obtained in infants and children with low-grade fever and elevated leukocyte counts.

Irradiation therapy is without danger when given by a competent radiologist. Therapy must be individualized for each patient and for his disease. Cases for roentgen-ray therapy should be carefully selected and complete laboratory studies made. Follow-ups are of paramount importance, as is close cooperation between the radiologist and the general physician or pediatrician.

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ABSTRACT OF DISCUSSION

DR. PAUL R. MEYER Port Arthur: My personal experience in the use of roentgen ray has been limited. This paper of Drs. Killingsworth and Kuhlman, however, brings up several questions in evaluation of its use in the infections treated:

1. *Recurrent upper respiratory tract infection with cervical adenitis.* Although the enlargement of the glands unquestionably is decreased, roentgen ray per se actually has little or no effect upon the primary infection from which the enlarged glands resulted. It therefore seems to me more appropriate to use roentgen-ray therapy as an adjunct to antibiotic or chemotherapy rather than in lieu thereof when regression fails to occur. Where marked hypertrophy of the tonsils and adenoids alone and not infection is present, I think roentgen therapy is the treatment of choice; where hypertrophy of the adenoids alone is present, I believe that radium therapy, even before impaired hearing is present, is preferable. When the cervical glands remain palpable persistently and no acute infection of the tonsils and adenoids is present but chronic disease as evidenced by the persistent adenopathy is present, the treatment of choice is surgical removal of the tonsils and adenoids, perhaps followed by radium therapy of adenoid fossa.

2. *Chronic nonspecific bronchitis.* Where mediastinal adenopathy is present, I certainly concur in the use of roentgen ray, which definitely reduces cough by reduction in the enlargement of the mediastinal glands.

3. *Allergic bronchitis.* Where mediastinal adenopathy exists with the allergic bronchitis, as in the case of chronic bronchitis, roentgen therapy may be palliative, but where the adenopathy does not exist I fail to see its benefit.

4. *Chronic sinusitis.* I agree with the authors. Until the infection is cleared and drainage obtained, even if the infection is secondary to an allergic manifestation, it is difficult to expect much other than a slight shrinkage of the engorged mucous membrane.

The large group of patients treated and the results reported by Drs. Killingsworth and Kuhlman certainly warrant further study of the advantages to be gained by more frequent use of roentgen ray for treatment in the respiratory infections of children.

ROENTGEN RAY IN THE DIAGNOSIS OF OTOLARYNGOLOGIC PROBLEMS

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AT the Massachusetts Eye and Ear Infirmary as head of the Department of Radiology is a man whose skill and experience I believe is unique. For the past thirty years, Dr. A. S. MacMillan has been checking roentgen-ray findings against operative findings, bringing to a high order of excellence the interpretation of roentgenologic films in otolaryngology. The temptation for the otolaryngologist to allow his judgment to be swayed by the radiologist's diagnosis is strong when experience has shown the radiologist to be almost always right. Because Dr. MacMillan's record for accuracy is extraordinary, it is plain why members of our staff have come to rely, perhaps too much, on his opinion. I sometimes think that everywhere today physicians may depend too much on the oracle that medicine has made of radiology. We must be careful not to let this dependence—or dependence on laboratory findings of any kind—lead to disuse of our clinical judgment, lest it atrophy.

In diagnostic problems of the ears requiring roentgenograms Dr. MacMillan has for many years used as standard the fronto-occipital projection, the lateral or Law position, and the projection of the petrous pyramids through the orbits. For the sinuses the usual anteroposterior, Watters, and lateral positions have been routine. Several years ago he added to these the vertex mental projection (fig. 1a) for the base of the skull and nasopharynx and the upright position for determining fluid levels in the sinuses (fig. 1b). He is of the opinion that these are the minimum requisite positions in gathering roentgenologic evidence by viewing the sinuses, the temporal bones, and the base of the skull.

Read before the Section on Eye, Ear, Nose, and Throat, State Medical Association of Texas, Annual Session, San Antonio, May 3, 1949.

SINUSES

Acute or chronic sinusitis, whether allergic, polypoid, or purulent, offers no particular difficulties to combined roentgen-ray and clinical diagnosis. Roentgenograms using the upright position may show a fluid line in any of the sinuses; the amount of retained secretion can be recorded by roentgen-ray studies if the symptoms justify it.

Mucoceles

Mucoceles of the frontal or ethmoid sinus are not infrequent. There may be a multiplicity of causes: (1) occlusion of the osteum as a result of chronic

inflammatory changes, (2) blockage by a tumor such as osteoma, (3) remnants of mucous membrane left after operation on the frontal sinuses or ethmoid cells (it is impossible to remove all the membrane), or (4) cystic dilatation of a mucous gland within the sinus membrane (in my opinion the likeliest explanation). Whatever the cause, the sole factor in erosion of the bone appears to be constant, increasing pressure.

Microscopically a mucocele is a thin-walled sac of fibrous, edematous tissue lined with low cuboidal or stratified columnar epithelium; normally the frontal sinus and ethmoid cells are lined with pseudostratified columnar ciliated epithelium. Contents of the sac are sterile; an infected mucocele is a pyocele.

I favor removing the mucocele insofar as possible and not merely uncapping it. The only difficulty is separating its wall from the dura. In the past few years, I have successfully used tantalum foil (fig. 2) in secondary operations on the frontal sinus, in initial operations where the sinus is large and has extensions and partitions, and after removal of a mucocele.

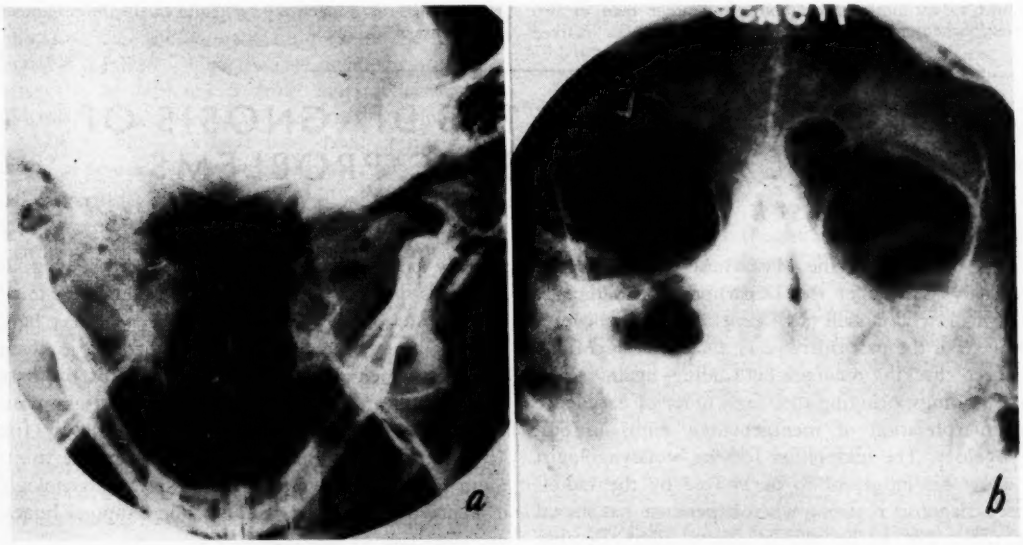

FIG. 1a. Roentgenogram illustrating the vertex mental position.

b. Roentgenogram illustrating the upright position and showing the fluid level in one antrum and in a small frontal sinus.

Tumors

New growths in the sinuses cause bony displacement or destruction and, owing to an increased blood supply, decalcification. An example of tumor of the sinuses follows:

CASE 1.—Mrs. J. A., aged 31, entered the hospital in December, 1948, her chief complaint being swelling of the left eye. Three months before she had noticed that her left eye was swollen and seemingly pushed upward. A doctor had given her eye drops and internal medication, since she had a basal metabolic rate of +16 per cent.

The patient appeared thin and apprehensive. She had an exophthalmos of the left eye, and a small, irregular mass could be felt at the inner canthus. Examination of the nasal cavity was negative except that the middle turbinate bled on the slightest trauma. Roentgenologic examination by Dr. MacMillan showed decalcification of the paper plate on the left side, the floor of the orbit, and the antral walls. The left antrum was extremely cloudy. The radiologic diagnosis was new growth of the left antrum.

A specimen for biopsy was taken through the canine fossa; the pathologic report was fibrous dysplasia. At lateral rhinotomy all the tumor tissue from the antrum and ethmoid sinuses was exenterated. Again specimens were sent to the laboratory; the diagnosis was giant cell tumor. The question therefore was whether the patient had hyperparathyroid disease or osteitis fibrosis cystica. Repeated blood specimens for calcium, phosphorus, and alkaline phosphatase were normal, thereby eliminating hyperparathyroidism. The pathologist finally decided the removed mass was a benign giant cell tumor. No radiation was given, and the patient has remained well.

Another case of tumor in the sinuses was reported in detail in 1946.[1] A 21 year old woman with headache in the right frontal region, diplopia, and swelling around the right eye, which was swollen and pushed downward, presented clinical evidence of chronic sinusitis with mucocele of the right ethmoid. Roentgenograms showed an opening in the roof of the right orbit, probably caused by a mucocele of the ethmoid. A Lynch operation was performed and what appeared to be a semisoft meningocele .5 inch in diameter was removed from the outer part of the

bony roof of the orbit. The pathologic diagnosis was eosinophilic granuloma.

FIG. 2. Tantalum foil sewed to the orbital periosteum.

A tumor presenting somewhat different symptoms was discovered in the following case:

CASE 2.—M. R., aged 59, had first consulted an otolaryngologist for repeated nosebleeds of long standing. The specialist performed a submucous resection of the nasal septum. The patient, far from being cured, bled continuously and severely for the next three weeks. Referred to me, he arrived at the Massachusetts Eye and Ear Infirmary tightly packed with nasal and postnasal packs. He was almost in extremis and had to be given two transfusions. The right external carotid artery was ligated and all packs were removed. The bleeding had been coming from the right sphenopalatine artery, as oozing could be observed in this area. The entire nasal septum was absent.

The interior of the nose was so infected, distorted, and traumatized that no landmarks were recognizable; local examination was of little value. Roentgenograms showed loss of the posterior nasal bony septum, which suggested malignancy to Dr. MacMillan. A few days later a biopsy specimen was taken from the region of the posterior end of the inferior turbinate; the pathologist's report was squamous cell carcinoma, grade 2.

NASOPHARYNX—TUMORS

New growths of the nasopharynx may be shown by roentgen-ray examination. Most often these growths are hypertrophied adenoids, choanal polyps, nasopharyngeal fibromas, hemangiomas, and transitional cell tumors.

I am opposed to relying totally on roentgen-ray examination for the diagnosis of adenoid tissue or any abnormality in the soft tissue of this area. When a nasopharyngoscope or a nasopharyngeal mirror cannot be used satisfactorily, a digital examination should be made, under anesthesia if necessary. Too often the otolaryngologist does not examine the nasopharynx carefully enough. It is embarrassing to the otolaryngologist for the general surgeon to take a biopsy specimen of a swelling in the neck and give the diagnosis of malignancy of the nasopharynx. Roentgen ray is of inestimable value, however, in diagnosing tumors of the sphenoid, chordomas, and other tumors that arise in the region of the sella turcica and by pressure invade the sphenoid and nasopharynx.

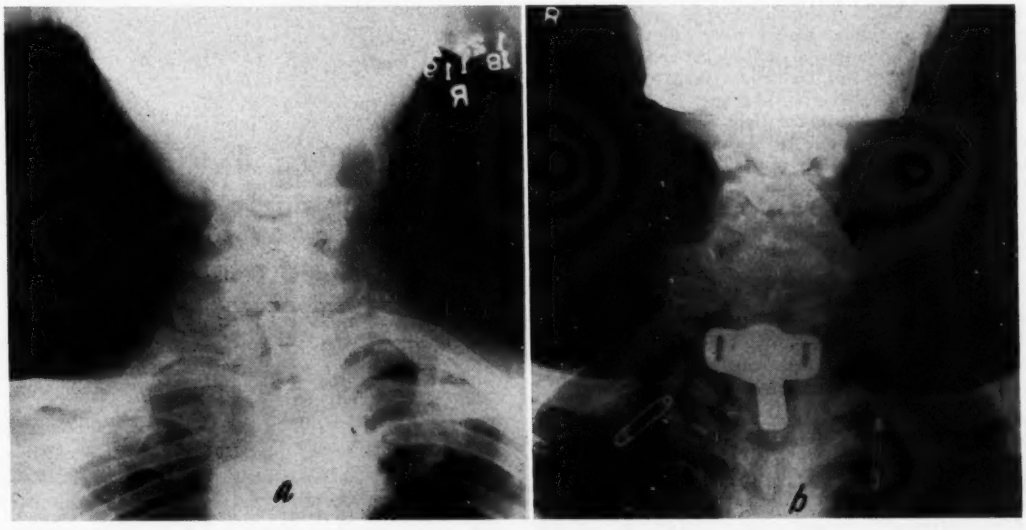

FIG. 3. Roentgenograms illustrating unilateral (*a*) and bilateral (*b*) laryngoceles.

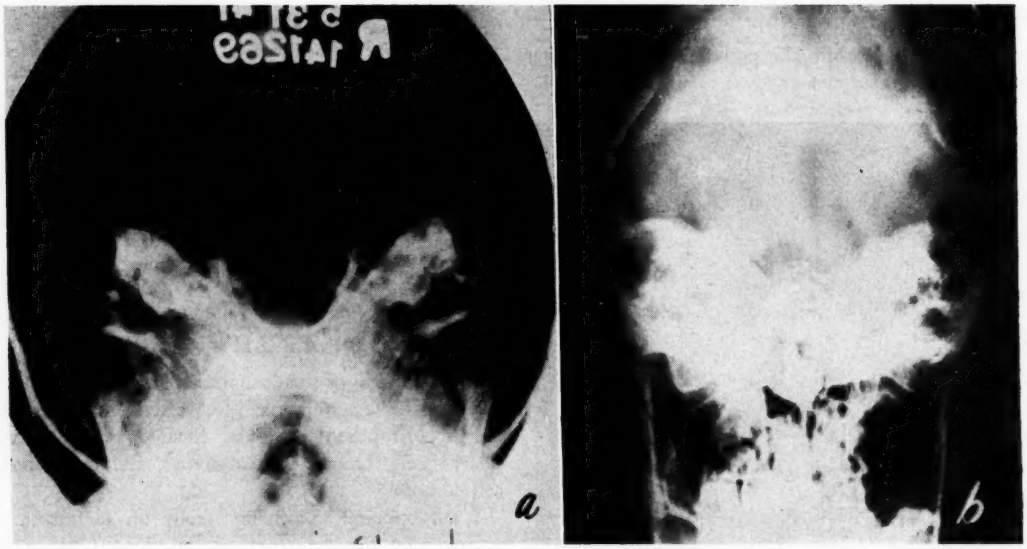

FIG. 4a. A fronto-occipital projection showing cholesteatoma enlargement of the mastoid antrum. b. A roentgenogram taken postoperatively showing the cavity resulting from a radical mastoidectomy followed by skin grafting.

CASE 3.—Mrs. C. S., aged 65, was admitted to the hospital in August, 1948, with a history of pain in the last right upper molar and a watery discharge from the right nostril, first noted six months before. Three months before admission the discharge had became bloody and the pain had spread to her temple. Ten days before admission she discovered some drooping of the right eyelid; she also had double vision. By this time the tooth had been extracted and an abscess supposedly found at its root. The tentative admission diagnosis, however, was brain tumor.

Medical and neurologic examination proved negative except for paralysis of the right third and fourth cranial nerves. The ear, nose, and throat examination was also negative except that with a nasopharyngoscope a strand of bloody mucus could be seen coming from the region of the sphenoid osteum. Roentgen-ray examination showed increased density in the region of the right sphenoid, and the outline of the floor of the sella turcica was not clearly visible.

Under local anesthesia the right sphenoid was opened and tumor tissue removed for biopsy. Erosion of the posterior bony wall had taken place. The pathologist's report was transitional cell carcinoma.

LARYNX

The larynx, like the throat, does not particularly call for roentgen-ray aid in diagnostic problems. In figure 3, however, are laryngoceles which show beautifully by roentgen ray. As a matter of fact, the roentgenograms in the following case confirmed the diagnosis.

CASE 4.—J. E., aged 64, entered the hospital in January, 1948, with hoarseness and a nontender mass in the neck on the right side. He had first noticed the mass the previous October and his physician had aspirated it, obtaining turbid, yellow fluid.

Mirror examination showed a large mass on the right side of the hypopharynx completely obliterating the pyriform sinus. The glottis was not easily visible and appeared to be pushed to the left. A roentgenogram (fig. 3a) showed a unilateral laryngocele, which was dissected out in toto. The sac was extended superiorly under the hyoid bone and laterally to the sternocleidomastoid muscle. The stalk of the laryngocele had entered the sacule of the right laryngeal ventricle.

Figure 3b shows a bilateral laryngocele.

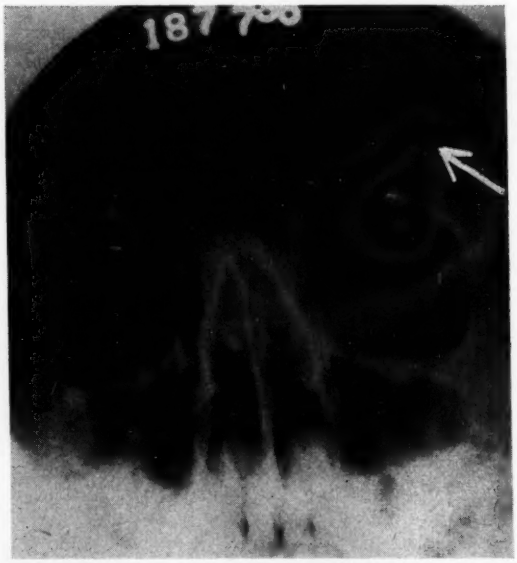

FIG. 5. A roentgenogram showing the fluid level in a brain abscess. The air pocket with the fluid level extends beyond the outer limits of the frontal sinus. A lateral view helped to localize the abscess.

EAR

Tumors of the ear most often indicated by roentgenograms are adenocarcinomas, basal cell and epidermoid carcinomas, and hemangio-endotheliomas; recently glomus-jugularis tumors have been diagnosed by sending so-called ear polyps to the pathologic laboratory. Roentgen rays show an enlargement of the internal auditory meatus in only about 10 per cent of cases of acoustic neuroma.

Cholesteatomas

Before going into cases of cholesteatoma it might be well to distinguish between the two types of that tumor: (1) true, or primary, and (2) so-called false, or secondary cholesteatoma. They actually are the same, differing only in etiology. The rarer, which does not greatly concern the otolaryngologist, is the true cholesteatoma arising within the diploe, spinal cord, or cecum and testicles; it is an inclusion tumor of ectodermal origin and does not metastasize. On the other hand, secondary cholesteatoma usually is found in the middle ear, attic, mastoid antrum, or external auditory canal. It is associated with chronic infection and has a characteristically disagreeable odor. Otologists disagree on the etiology of this type of cholesteatoma. My belief is that it develops from an ingrowth of epithelium through a Shrapnell's membrane or a marginal perforation and that the ingrowing epithelium piles up like a snowball rolling downhill and by pressure and chemical action erodes the bone.

In 3 patients recently seen at the Massachusetts Eye and Ear Infirmary, roentgenograms indicated that the cholesteatoma was confined to the epitympanic space and middle ear. But at operation in 1 case the tumor proved to be extensive enough to have eroded the bony facial canal, leaving the facial nerve bare; to have wedged itself into the labyrinth at the expense of the stapes and the oval window; and to have caused a large fistula in the dome of the vestibule of the labyrinth. In brief, the patient had had an invasion of cholesteatoma from middle to inner ear in two places, resulting in a dead labyrinth and requiring a labyrinthectomy, yet there was no roentgenologic evidence of invasion! In the other 2 patients, at radical mastoidectomy cholesteatoma was found packed in the eustachian tube, middle ear, and epitympanum, yet none of this involvement showed on the roentgenogram. The diagnosis was made clinically and was borne out by the operative findings in each of the 3 cases.

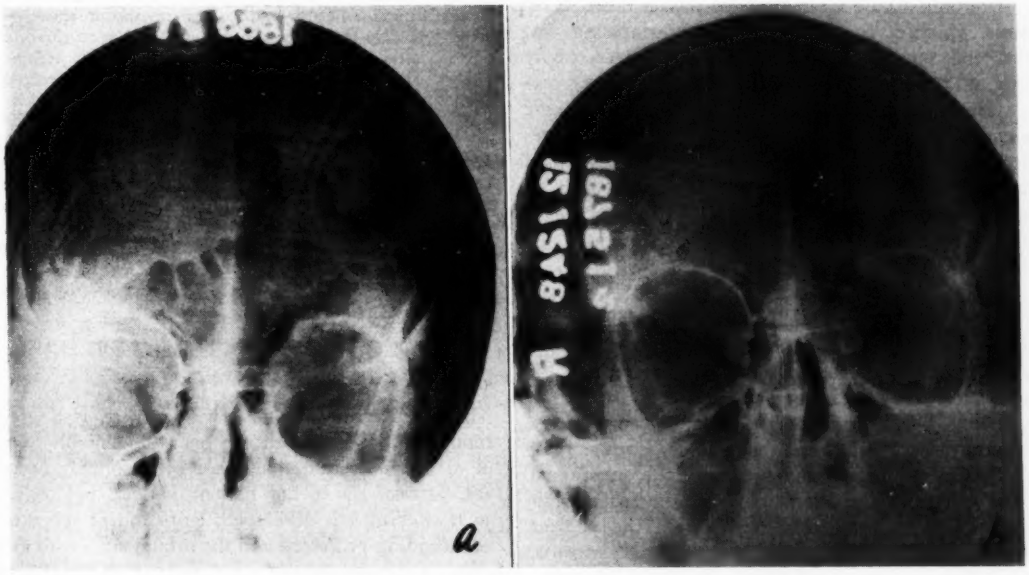

FIG. 6. Roentgenograms illustrating frontal bone osteomyelitis in an 18 year old boy with acute sinusitis; *a* shows the condition preoperatively and *b* shows the postoperative defect.

Roentgenograms of cholesteatoma typically show enlargement of the mastoid antrum in the frontooccipital projection (fig. 4a). This observation is the indication par excellence for operating on patients with chronic suppurative otitis media, because sooner or later the cholesteatoma will invade the lateral sinus plate, the bone over the cerebrum or

cerebellum, or the labyrinth and cause some serious complication. Below is an example of roentgen ray confusing the issue in this type of case.

CASE 5.—Mrs. F. W., aged 35, complained of unilateral headache, vertigo, and a discharging right ear of six months' duration. Up to her sixteenth year she had had recurring otitis media in the ear. A roentgenogram showed an enlarged mastoid antrum and a sclerosing mastoid. After a radical mastoidectomy, however, the ear continued to drain and the patient complained of pain just below the ear. Before the ear could be dried up two skin graftings and an exploration of the jugular bulb region were necessary, but the pain continued. The patient was referred to a neurosurgeon at another hospital to see if he could inject or sever any nerves to relieve her pain. He tried local injection and injection of the stellate ganglion, then asked the department of radiology in his hospital for a diagnosis, which it gave as cholesteatoma of the mastoid cavity.

The only excuse I can find for this incorrect diagnosis, which of course was extremely confusing, was that the skin-grafted, postoperative mastoid cavity (fig. 4b) looked somewhat like a cholesteatoma cavity. Had the radiologist been a specialist in otologic roentgenology, however, I believe he would have relied on looking into the ear and would have paid more attention to the history before giving such an opinion.

MASTOID AND TEMPORAL BONE

Roentgen-ray examination is useful in showing the size, shape, and type of mastoid and whether the lateral sinus is far forward, close to the antrum, or well back, thus indicating the space in which to operate. This information is important, even in a fenestration operation on a supposedly normal mastoid. With the four standard positions mentioned already, namely, the lateral position, the fronto-occipital position, the transorbital view of the petrous apices, and the vertex mental position, petrositis, most cholesteatomas, and new growths of the temporal bone can be diagnosed.

The first case of petrositis I saw at the Massachusetts Eye and Ear Infirmary was in 1930:

CASE 6.—B. D., a woman in her early twenties, developed acute mastoiditis and was operated upon about five weeks after onset of acute suppurative otitis media. The middle ear did not dry up and headache continued. She did not develop a paralysis of the sixth nerve, however, as in Gradenigo's syndrome. A roentgenogram one month after the simple mastoidectomy and nine weeks after onset of the otitis media showed a petrositis in a large pneumatic mastoid. The apex of the petrous pyramid was drained posteriorly to the labyrinth and the patient made a good recovery.

FRONTAL BONE

Air bubbles seen in roentgenograms mean gas produced by bacteria in the tissues; they also suggest collections of pus. They are significant in orbital cellulitis, in edema over the frontal bone, or even in an unusual brain abscess. In one instance a stick jammed through the cribriform plate into the frontal lobe by a fall resulted in a brain abscess. The fluid line and the air pocket above may be noted in figure 5. A lateral view helped localize the abscess.

Osteomyelitis

Osteomyelitis of the frontal bone is less frequent and severe since antibiotics have come into use. Roentgen-ray evidence of this infection lags a week behind its actual advance; brawny edema over the frontal bone, resulting from sinusitis, is more indicative. Dr. Mosher formerly believed that the bone should be removed at least 1 inch beyond the limit of the edema, but since the advent of chemotherapy he does not insist on this rule.

CASE 7.—An 18 year old boy with acute Staphylococcus aureus frontal sinusitis and edema of the forehead was given penicillin for two weeks. He appeared to be cured, but a week after treatment was stopped the edema returned. The swelling extended over the whole scalp. A roentgenogram (fig. 6a) showed osteomyelitis of the frontal bone.

A strip of frontal bone was removed from the midline of the forehead and vertex. No normal dura was seen, and at the edges of the bony defect were epidural granulations. Although without chemotherapy the bone would have been removed an inch beyond the epidural granulations in accordance with Dr. Mosher's dictum, in this instance the antibiotics were relied on. After adequate penicillin therapy for six weeks (the minimum period for such therapy in osteomyelitis) the patient recovered. The postoperative defect can be seen in figure 6b.

FRACTURES AND OTHER CONDITIONS

In fractures of the nose where there is a great amount of swelling, roentgen ray is undeniably helpful in diagnosis but should not be absolutely necessary, particularly if the patient is seen before too much swelling has developed. Palpation of the nose, the ascending processes, and the orbital rims with evidence of crepitation or displacement of fragments should in most instances suffice for diagnosis. The help of the radiologist, however, is needed in the diagnosis of depressed fractures of the superior maxilla and malar bones. (Incidentally, I have obtained my best results in this type of case by opening the bone in the canine fossa and under direct vision making a permanent opening into the nose, manipulating the fragments into place or removing certain fragments, rather than by working with a bullet forceps from outside, working through an intranasal opening, or working from above along the temporofacial planes.)

One patient I saw recently had tripped and struck the malar bone on the floor with such force that a severe and disfiguring fracture resulted. She complained of considerable numbness of the cheek. At operation I saw that the infra-orbital nerve was tight-

ly compressed by fragments. A complete decompression of the nerve, with removal of bone spicules from the floor of the orbit and elevation of the other fragments, resulted in restoration of facial symmetry and normal function.

Salivary gland calculi are frequently noted by roentgen-ray examination. Sialograms are often taken to judge the patency of the salivary duct system.

Before a Toti-Mosher operation is performed tear sacs are routinely injected with Lipiodol and examined by roentgen ray to prove that the obstruction is in the nasolachrimal duct.

SUMMARY AND CONCLUSIONS

A cross section of some otolaryngologic work at the Massachusetts Eye and Ear Infirmary is reviewed.

The roentgen rays can be of great diagnostic aid in otolaryngologic problems. A specialist in roentgenology who follows his diagnoses to the operating room may become exceedingly proficient in the interpretation of roentgenograms.

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403 Commonwealth Avenue.

DIAGNOSIS OF DEAFNESS

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DEAFNESS and the associated diagnostic problems are receiving increasingly more attention from the otolaryngologist and are deserving of more consideration throughout the medical profession. For practical purposes the word "deafness" denotes hearing impairment and may be applied to all degrees of impairment, even though some prefer the term "hard of hearing." Deafness is the more descriptive term and is in correct usage according to Webster, "deaf" being described as "wanting, or deprived of, the sense of hearing, either wholly or in part." The term deafness does not permit the evasion of the truth so often desired by the patient and condoned by the physician. When the impairment is accepted, the problem may be faced with an attitude of realism concerning the proper approach whether it entails the application of a hearing aid, a course in lip reading, fenestration surgery, or other methods.

As we learn more concerning the psychology of the deaf we realize more thoroughly our responsibilities as otolaryngologists to a large group of unfortunate people (estimated at approximately 10,000,000 in the United States) with whom we come in contact daily. Deafness to the degree of definite impairment usually creates behavior changes at all ages. The child may acquire an inferiority complex or become rebellious; the adult may become introverted or depressed; and the person of advanced years may show a more rapid progress into senility. If we are to prevent the onset of deafness or use the therapeutic methods at our disposal most successfully in the treatment of deafness, early diagnosis of hearing impairments appears to be the keystone of the problem. This is particularly true in deafness due to involvement of the conduction mechanism, such as secretory otitis media, otosclerosis, and some forms of chronic purulent otitis media.

From the Department of Otolaryngology, University of Texas Medical Branch, Galveston.

Read before the Section on Eye, Ear, Nose, and Throat, State Medical Association of Texas, Annual Session, San Antonio, May 3, 1949.

DIAGNOSTIC METHODS

Tuning Fork Tests.—After a complete history and ear, nose, and throat examination the following tuning fork tests will definitely aid in the diagnosis:

1. The Rinne test consists in a comparison of the duration of air conduction with the duration of bone conduction using the 256, 512, and 1024 frequency tuning forks. When air conduction is greater than bone conduction, the test is positive (normal hearing or nerve deafness). When bone conduction is greater than air conduction, the test is negative (conduction type deafness). When bone conduction is equal to air conduction, the test is equal (early conduction deafness or mixed deafness).

The Rinne test may vary from negative to equal to positive with the various forks depending on the

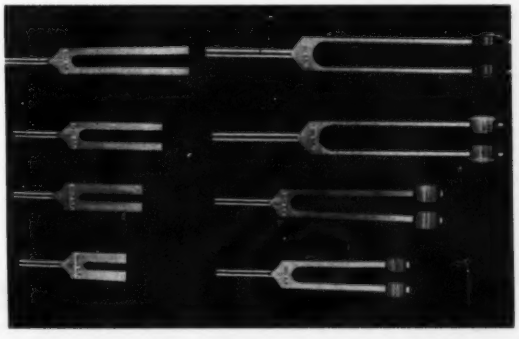

FIG. 1. Photograph of various tuning forks with descriptive markings used in Rinne and Schwabach air conduction tests.

importance of the elements causing the deafness, especially in conduction lesions, but the Rinne is always positive for all forks in normal hearing and pure nerve lesions and negative for all forks in pure conduction lesions. In a condition in which there is a conduction lesion with secondary nerve degeneration or early deafness due to conduction lesion, however, the Rinne test may result in such combinations as

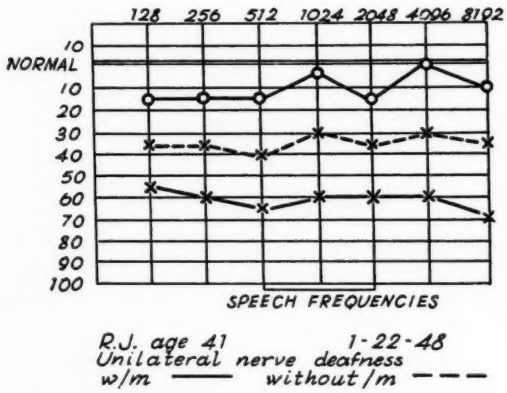

FIG. 2. Audiogram illustrating unilateral nerve deafness with and without masking.

256 negative, 512 negative, 1024 positive; or 256 negative, 512 positive, 1024 positive; or 256 negative, 512 negative, 1024 equal.

The Rinne test is useful in discovering the importance of each factor in the so-called "mixed" deafness.

2. In performing the Schwabach test the examiner may utilize the 256, 512, 1024, and 2048 frequency forks though the latter fork is considered the least reliable and therefore is not used by some examiners. The test may be done in two ways:

The method usually described in the textbooks requires that the examiner time the duration the fork is heard by bone conduction. This method is cumbersome and inaccurate.

The most practical method is to compare the patient's bone conduction for each fork with a known normal (examiner) and to record the results as normal, very slightly shortened, slightly shortened, moderately shortened, much shortened, scarcely heard, or not heard. Since the bone conduction test on the audiometer is not always reliable, this test is a good check on the bone conduction portion of the audiometric record. When the two records are at variance, the Schwabach test is usually the more reliable in the hands of the experienced examiner.

3. Examination with the 32 and 64 frequency forks is particularly useful in the determination of fixation of the stapes in otosclerosis. When the stapes is completely fixed, these forks cannot be heard at maximum intensity by air conduction. The various gradations which may be recorded as in the Schwabach test above indicate roughly the degree of fixation.

Audiometric Tests.—Reliable test results from audiometric testing are dependent upon several factors:

1. Environment. The test should be performed in the quietest possible place. The average office noise is known to vary between 40 and 60 decibels depending upon the amount and type of activity present. These outside noises act as a masking noise and will tend to diminish the tested person's acuity for the pure tones below the 1024 frequency, especially in persons with mild or moderate degrees of impairment.

The ideal situation for audiometric testing is to have a room which is adequately soundproof (quiet, sound treated room) and especially constructed for the purpose.

2. Equipment. The equipment used should be calibrated at relatively frequent intervals, at least every six months, in order to insure its efficiency. A simple method of testing the efficiency of the equipment is to test several persons known to have normal hearing for both bone and air conduction. If these tests do not prove to be accurate, the audiometer should be returned to the manufacturer for calibration.

3. Technician. The person performing the test should be adequately trained and have a reasonable amount of interest in the work. Otherwise the test will be totally unreliable.

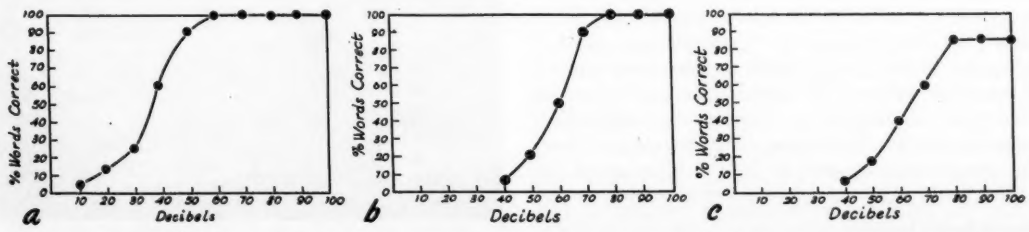

FIG. 3. Illustrations showing the results of speech discrimination tests using phonetically balanced words with "live voice" and earphones: (*a*) normal speech curve, (*b*) pure conduction loss, and (*c*) conduction loss with secondary nerve degeneration.

4. Technique of audiometry. A standard technique for audiometric testing endorsed by the American Medical Association or some other appropriate body should be used to insure uniform test results. The method used in the University of Texas Hearing Clinic for pure tone audiometry is to proceed from audibility to inaudibility and then to return to audibility and to select the threshold for each tone at the level of audibility. The response for this threshold must be uniform and consistent over several trials for each tone before the threshold for the tone is determined. The interrupter switch is used constantly during the test to determine the accuracy of the responses. If the threshold is chosen when proceeding from audibility to inaudibility the so-called "after tone" factor is not eliminated and the results may not be consistent. This is especially true in testing patients after fenestration operations.

An adequate masking tone should always be used in the better ear on air conduction tests when the difference in acuity between the two ears is 30 decibels or more (fig. 2). In testing bone conduction on a patient with conduction deafness a masking tone equal to or 10 decibels greater than the bone conduction loss in the ear being tested should be used in the opposite ear.

The bone conduction test as a measure of the function of the auditory nerve mechanism may be the least reliable portion of the audiometric test. This portion of the test follows the air conduction test and is unnecessary when the patient has a pure nerve or perception type impairment which is readily recognized when the low tone portion of the curve is

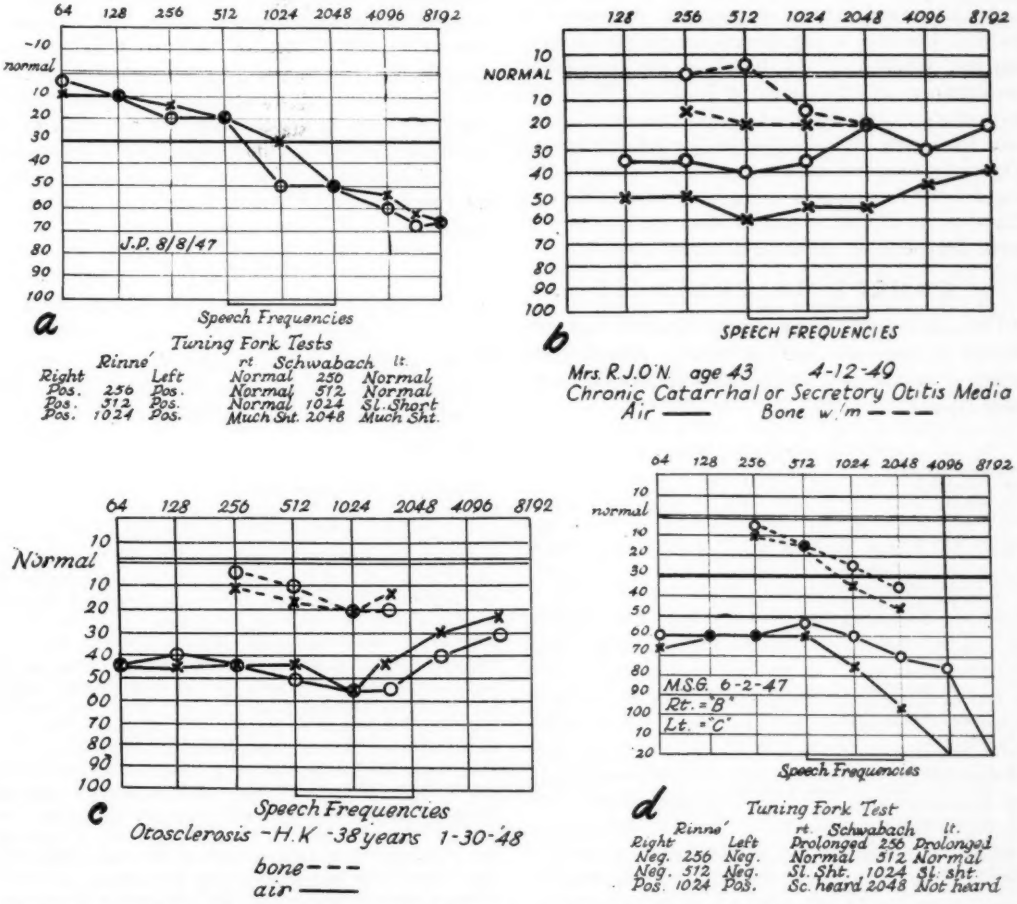

FIG. 4. Typical audiograms showing various types of deafness:
a. Pure nerve degeneration. Note that there is no bone conduction curve.
b. Chronic catarrhal or secretory otitis media.
c. Otosclerosis showing pure conduction lesion.
d. Otosclerosis with advanced secondary nerve degeneration.

within normal limits and the only appreciable loss is above the 512 frequency. When the audiometric curve shows a low tone loss suggesting a conduction impairment, the bone conduction test, with appropriate masking, should always be done for the frequencies 256, 512, 1024, and 2048. The tuning fork tests—Rinne and Schwabach—should be done to confirm the audiometric bone conduction findings.

An additional aid in determining the status of cochlear function is the speech discrimination hearing test, which is a test based on the recruitment phenomenon and developed by Hallowell Davis and co-workers at the Psycho-Acoustic Laboratory, Harvard University. This test, using "live voice" through a specially equipped audiometer for phonetically balanced word lists, is now being used in the Hearing Clinic as an adjunct in determining the presence of nerve degeneration in fenestration candidates (fig. 3).

CAUSES OF DEAFNESS

The chief causes of perception deafness and conduction deafness are listed in table 1. Among these causes is otosclerosis, about which I wish to comment further.

TABLE 1.—*Causes of Deafness.*

Perception deafness
1. Congenital
2. Senility
3. Toxic
   a. Infection:
      (1) Measles
      (2) Scarlet fever
      (3) Influenza
      (4) Meningitis
      (5) Labyrinthitis
      (6) Mumps
   b. Drugs
      (1) Quinine
      (2) Salicylates
      (3) Streptomycin
      (4) Sulfonamides
4. Syphilis
5. Psychogenic
6. Skull fracture
7. Meniere's disease (hydrops of labyrinth)
8. Apoplexy of labyrinth
9. Acoustic trauma
10. Acoustic neuroma
11. Labyrinthine otosclerosis
12. Leukemia
13. Purulent labyrinthitis

Conduction deafness
1. Occlusion of external auditory canal
2. Suppurative otitis media
3. Perforation of tympanic membrane
4. Obstruction of eustachian tube
   a. Catarrhal otitis media
   b. Aero-otitis media
5. Adhesive deafness
6. Otosclerosis

Otosclerosis is a common cause of conduction deafness in adults. Guild at Johns Hopkins indicated that approximately 10 per cent of the adult white population has subclinical otosclerosis, that is, an overgrowth of bone on the bony labyrinth but not necessarily causing deafness. Approximately 1 per cent of the adult white population in the United States has clinical otosclerosis resulting in deafness. The onset of clinical otosclerosis may occur in the age group of from 10 to 45 years. The physical findings are usually entirely negative, the tympanic membranes being intact. The onset is usually gradual and the condition is progressive as a rule. While the deafness is most commonly bilateral, unilateral clinical otosclerosis is not uncommon. A conduction deafness associated with the above observations is usually due to otosclerosis with stapes fixation. The fixation of the stapes can be readily confirmed at operation, proving the efficiency of present diagnostic methods. Of 42 patients operated upon, 38 have had complete stapes fixation as demonstrated by palpation of the stapes at operation. Of the 4 patients not demonstrating stapes fixation 3 gained practical hearing from the operation and 1 patient showed no hearing improvement.

SUMMARY

The importance of an etiologic diagnosis in its relation to therapy of deafness has been stated. Some of the problems in the diagnosis of deafness have been reviewed, and typical audiograms from the files of the University of Texas Hearing Clinic have been presented.

Hermann Professional Building.

ABSTRACT OF DISCUSSION

DR. J. M. ROBISON, Houston: Dr. Guilford has presented in a practical form the tests which are fundamental and necessary for the proper evaluation of hearing. The systematic manner in which he has outlined these tests leaves little to be desired insofar as examination of the patient is concerned. Actually, he has given an outline of the routine used in examination of patients who come to the University of Texas Hearing Clinic in Galveston. This hearing clinic was established by the Board of Regents of the University of Texas for the particular purpose of making available to the indigent population of our state the most modern methods of diagnosis and treatment for all types of deafness. Under Dr. Guilford's guidance this clinic has met its obligations with utmost efficiency, and by cooperating with other state agencies such as the State Rehabilitation Commission and eleemosynary institutions, it is rendering a much needed service. Any practitioner of medicine may refer to this clinic any indigent citizen of Texas for free diagnosis and treatment.

It is not within the scope of this discussion to comment on the scientific value of the various tests which are used in evaluation of hearing, but it is possible briefly to detail some of the physical and personnel facilities which are necessary for operation of a clinic of this type. The physical facilities at the University of Texas Medical Branch have been patterned by the standards set by the leading hearing clinics in this country. These facilities consist principally of a "soundproof" or "sound treated" room built according to standard specifications of concrete tile and sound insulating materials. Also, there are several audiometers available so that one or more of them are in constant calibration for both pure tone audiometry and speech testing. The latter

has been found to be important in determining the social adequacy index with particular respect to economic and social rehabilitation. These facilities are operated by a technician trained in one of the best schools and by the residents in otolaryngology. Although the residents may be intensely interested in the scientific side of the hearing problem, the training and human interest of the technician in direct charge of the routine tests are important factors in the efficiently operated hearing clinic.

The progressive loss of hearing which so often occurs in patients with otosclerosis is one of the most important problems encountered in a hearing clinic. Will the fenestration operation stop this progressive deafness? If it will stop the progress of this type of deafness, why should not all patients with progressive deafness from otosclerosis have the fenestration operation to conserve the remaining portion of their hearing even though they cannot be restored to maximum social adequacy? I would like for Dr. Guilford to comment on this phase of the subject.

DR. GUILFORD, closing: It has been observed by Dr. George E. Shambaugh, Jr., that a successful fenestration operation tends to retard or stop the progress of the nerve degeneration in the ear operated upon. This observation was made on a series of patients whose postoperative period extended over five years or more.

SINUSITIS IN CHILDREN

DOUGLAS F. BARKLEY, M.D., Austin, Texas

DURING the past few years we have come to recognize the prevalence of nasal sinusitis in children and the importance of early and adequate treatment. In the child it should be possible to correct a disability in a stage of dysfunction before it has reached an established pathologic state. The actual diagnosis is usually not difficult if the family physician or pediatrician keeps in mind the frequency of nasal sinus infections.

By thorough study and proper treatment of the nasal sinuses, the frequency and duration of colds in children, heretofore discouraging to parents and physicians alike, can now be lessened.

The discussion in this paper is not meant to apply too much to those patients in whom the nature of the infection is plainly discernible by reason of a purulent nasal discharge or to those having acute sinus infections with prostration, high temperature, or evidence of suppurative invasion of the adjacent structures. In these cases, the local signs usually are not difficult to interpret and proper active therapy is fairly certain to be given. Instead, I wish to consider the type of case in which the picture is not so readily diagnosed as in sinusitis.

ANATOMY

According to Schaefer,[9] the maxillary sinus can be identified in a 3 month old fetus and is well established at birth, being approximately 8 by 6 by 4 mm. The ethmoid cells are also present at birth; the sphenoid sinus exists as a spheno-ethmoidal cell and is nasal in position, and the frontal sinus as a fronto-ethmoidal cell. Neither of these sinuses establishes identity until the third or fourth year, although they may grow to a formidable size before then. It is well to remember that the anterior and posterior ethmoid cells are considered as such according to the location of their ostiums where the anlage of the cell originated, the former being in the middle meatus anterior to the lamella of the midturbinate and the latter in the superior meatus irrespective of the developmental peregrinations of the cell itself. From a practical consideration, in the early years the ethmoid sinuses, and to a lesser degree the maxillary antrums, share in the nasal infections. After this period, all the nasal sinuses are subjected to infections of clinical significance.

Read before the Section on Eye, Ear, Nose, and Throat, State Medical Association of Texas, Annual Session, San Antonio, May 3, 1949.

PHYSIOLOGY AND PATHOLOGY

The fact has been undeniably demonstrated by Proetz[7] and Hilding[5] that the two most important mechanisms in the nose are the coating of mucus and the ciliary activity of the mucous membrane, the former functioning as a protective "blanket" and the latter as the motive power to keep this "blanket" moving toward the ostiums of the sinuses and thence to the nasopharynx, carrying enmeshed bacteria, white cells, and foreign particles out of the sinuses and nasal cavity. The two authors stressed the importance of a constantly moist surface and the danger of areas of dryness of the epithelium, which render it vulnerable to penetration by bacteria and to the establishment of infection in the subepithelial tissue.

The sinuses in the infant are outpouchings of the nasal cavities, the openings of which are large and the epithelium of which is contiguous with that of the nose. As the child grows older the sinus areas become larger and the sinus openings smaller. In the infant and child infection of the nose usually causes an infection of the paranasal sinuses which subsides as the nasal infection subsides.

Another feature of sinus structure which interferes with the subsiding of paranasal infection is the inefficient location of the ostiums of the sphenoid and

maxillary sinuses. This is responsible for the accumulation of deep layers of toxic inflammatory products which interfere further with the efficient emptying of these sinuses.

The remarkable ability of the nasosinal ciliated epithelium to cleanse itself is not unlimited, and in spite of its well known ability to work against gravity, there comes a time when the ciliary flow must succumb, at least temporarily, to the overwhelming blanket of pathologic products.

A common cold infection in infants and children is properly a rhinitis as well as a sinusitis. When a common cold fails to subside in a few days, there is usually a combination of factors causing the prolongation of the infection. One factor worthy of mention is an allergy causing blockage. Hansel[4] reports that 44 per cent of children have an allergic rhinitis. Other factors are virulence of the invading organism, obstructions such as deviated septum in the nose, foreign bodies in the nose, enlarged middle turbinates, hypertrophy of adenoid tissue, and the general health of the child as influenced by environment and diet.

DIAGNOSIS

A thorough review of the previous as well as the present history must be made. The first question should concern the frequency of colds. Invariably it will be elicited that colds are frequent and that they persist for a long period of time. The parents usually ask if there is anything that can be done to decrease the number of colds. Usually the routine treatments such as nose drops, vaccines, vitamins, and administration of tonics have already been given.

Many times the onset of the chain of symptoms begins with some exanthematous infection; the child improves after the scarlet fever or measles, but a nasal discharge continues. All upper respiratory infections cause a reactivation of a greater or lesser degree, and eventually the recurrences are so frequent and prolonged that it is realized the condition is not just a recurring cold but a recurring sinusitis.

The most common complaints are (1) frequent colds, as described, (2) nasal obstruction and discharge, (3) an unexplained low grade fever, (4) cough, and (5) general poor health.

The nasal discharge, labeled "nasal catarrh" by the layman, usually points to the region involved. This discharge varies in amount and quality. In most children it is a yellow mucopus, but it can be a thin, fairly clear mucus. The amount of pus depends upon the duration of the infection, the nature of the infecting organism, the tissue response, and the degree of obstruction.

In an allergic nose with a secondary infection, considerable mucus usually is mixed with the pus. Smears of the discharge properly stained with "Hansel's stain" will reveal large numbers of eosinophils. As the secondary infection increases, the neutrophils increase and the eosinophils decrease. The eosinophils return in larger numbers as the infection subsides.

Until recently a low grade fever in the absence of a nasal discharge had not been given sufficient consideration from the standpoint of nasal sinus infection. The fever is usually low grade and is present in the afternoons; children will often be checked for tuberculosis with the different agglutination tests. The examiner often ascribes the fever to the cold, pharyngitis, or an associated cervical lymphadenopathy.

Personality changes such as restlessness, languor, anorexia, and irritability may occur, and the child "does not do well."

The cough which frequently accompanies the postnasal discharge of sinusitis is caused partially by irritation and partially by infection of the lower tract by direct spread. The material finds its way to the laryngeal aditus and possibly into the larynx and trachea. The parents often state that their child begins to cough as soon as he goes to bed, and also throughout the night whenever he changes his position. This change in position brings a plug of mucopus down from the nasopharynx, where it has accumulated during the inactivity of sleep. The plug comes into contact with areas of mucosa unaccustomed to its presence, and the patient coughs purposefully or reflexively to get rid of the irritating material. If the mucopus is thick and tenacious, it may throw the child into spasms of coughing so severe as to cause him to gag or vomit. With the above complaints, a thorough diagnostic study of the sinuses should be made.

Diagnosis is usually easy by the use of the following steps: Anterior rhinoscopy usually reveals engorged inferior turbinates, and if the middle turbinates can be visualized, pus may be seen coming down over or from beneath one or both of them. At times pus can be seen along the floor of the nose; if the inferior turbinates are so enlarged that the middle turbinates cannot be visualized, the mucous membrane should be shrunk with a mild vasoconstrictor applied by an atomizer. After shrinkage of the turbinates, pus may be seen beneath them. A stream of pus can often be elicited by using gentle suction at the anterior nares or by using a displacement irrigation.

Posterior rhinoscopy can usually be done by means of a mirror after spraying the oropharynx with a 1 per cent solution of Pontocaine. A stream of pus can often be seen coming down from the sphenoethmoidal recess or down over the posterior end of either the middle or the inferior turbinates.

Inspection of the oropharynx gives another lead

to infection above. There is always a secondary effect upon the pharyngeal mucosa. The smooth glistening appearance of the mucosa is replaced by a granular pebbled appearance, the result of hypertrophy of lymphoid follicles in the mucous membrane. These appear like cobblestones with the elevated mucosa a deeper red than the intervening mucosa.

There may be a thickening of the mucosa on each lateral pharyngeal wall behind the posterior palatine pillars coming down from the nasopharynx. These bands may be bilateral or unilateral. If they are unilateral, the band points to the side on which the discharge is most profuse and gives evidence of the downward pathway of the irritating discharge. Often the causative mucopus discharge can be seen.

This discharge, as already stated, can vary widely in amount, color, and viscosity. However, there may be little or no visible discharge at the time of examination and the changes in the mucosa may be the only clue. The discharge may have been removed by expectoration or blowing of the nose.

Large masses of adenoid tissue may block the posterior choanae and thus interfere with ventilation and drainage. Such adenoid vegetations must be removed surgically if good results are to be obtained from any type of treatment.

When no discharge is evident and other mucosal findings suggest sinusitis, a valuable step is a displacement irrigation. By this means a stream of pus may be started or mucopus obtained in the collecting bottle. Discharge may be obtained thus from inaccessible spaces of the nose, and even though the offending individual sinus may not be localized, valuable information may be obtained.

Many other confirmatory details are noted when careful observations and painstaking history are the routine. Mouth breathing, odor to breath, nasal voice, and alar irritation are common. These of course are caused by discharge and nasal obstruction. Often these children also suffer from otitis media and cervical lymphadenopathy.

Transillumination as a diagnostic aid is not of much value in children because of the thin bones and the often-noted fact that in cases of considerable sinus involvement the light may come through readily. Roentgen ray in children usually does not give much help in diagnosis as the pathologic condition in the type of sinusitis under discussion has usually not reached the stage of much mucosal thickening or osseous changes; however, in certain selected cases in older children, valuable information can be obtained by roentgen ray.

Nasopharyngoscopic examination often gives information such as the finding of pus coming directly from an ostium, but a diagnosis usually can be made without it.

TREATMENT

It is essential to have a clear understanding of the predisposing factors, the physiology, and the pathology of the sinus infection in children to understand and interpret the symptoms and plan the treatment. Both local and constitutional factors must be considered and treated. Dean,[2, 3] in his numerous articles on the successful treatment of sinusitis in children, has repeatedly stressed the importance of the close cooperation between the rhinologist and the pediatrician. Too often, especially in cases of prolonged unresponsive nutritional states, children are not given the benefit of a rhinologic opinion unless there is an obvious nasal infection present.

A large percentage of children subjected to repeated head colds and cough are victims of an allergic background from inhalants, foods, or bacteria. Thus, a secondary infection is often imposed on an allergic rhinosinusitis which will not respond to any treatment unless the offending allergens are traced down and eliminated.

Anatomic anomalies and structures which interfere with ventilation and areation of the nose and sinuses are often found in children; however, surgery is rarely done until the nose and adjacent structures reach their full growth. Occasionally a localized abscess must be drained. Dean[1] stated that 80 per cent of sinus infections can be cured by proper removal of tonsils and adenoids.

Laing[6] reported 900 cases of subacute sinusitis treated by roentgen-ray therapy in which there was a cure in 71 per cent and moderate improvement in 15 per cent with temporary improvement or none at all in 14 per cent. He stated that these latter patients probably did not respond because they had an underlying allergy.

A form of treatment which restores the function of the cilia and helps the epithelium to cleanse itself without injuring the membrane is ideal. The method of irrigation and cleansing of the nose and sinuses described and named after Proetz[8] gives this highly desirable physiologic effect. Properly performed it cannot add any trauma or insult to tissue already in a poor state of self defense.

By this method instrumentation is practically eliminated. I seldom have to use any solution for local shrinkage before performing the displacement treatment. A solution of .25 per cent Tuamine in physiologic saline solution gives excellent results. I have also used a .25 per cent solution of Neosynephrin in physiologic saline solution.

When the irrigating solution is caused to enter the sinus cavities, it dilutes the accumulated secretions

and debris; thus the products of mucosal injury are loosened from the sinus walls and floated out or drawn through the ostiums into the common nasal cavity, and the ciliary function can be aided in resuming its process of self cleansing.

The equipment for this treatment consists of a chair that can be made to recline or a table, a source of suction, an irrigating solution, rubber tubing, and a nasal tip. The source of suction may be either a small electric pump, water faucet suction, or a Dee nasal suction bulb. I use a female urethral syringe with ¼ ounce capacity to instill irrigating solution and the Dee nasal suction bulb as the source of suction.

Before the irrigation is begun, the child is seated in the chair and told in a friendly, informal manner about the treatment. If he has not reached the age of understanding, it is wise to wrap him in a sheet and let the nurse hold him.

The patient is put in a supine position and the head hyperextended so that the chin and external auditory canals are in a vertical line. He is told to breathe through the mouth and to try not to swallow.

When the child is in the proper position, 2 cc. of solution is instilled into each nostril with the solution flowing along the floor of the nose. Suction is then applied to one nostril while the other nostril is held closed. At the same time the patient is instructed to vocalize the guttural sound of "k." The amount of suction can be controlled easily by letting the closed nostril open. The suction is then applied to the other nostril. After drawing most of this solution out, 2 cc. is put into each nostril and the suction repeated for three or four alternations. The patient is then raised and permitted to expectorate and cleanse his nose. The above procedure is then repeated. If no pus is obtained at the time of the first procedure, a large mass of pus is usually obtained at the time of the second irrigation if the antrum has a suppurative infection present.

The above treatment is repeated every other day for three or four times. I have seldom had to give more than four treatments unless the child develops a flare-up from a new infection. A transitory headache occasionally occurs in adults, but rarely in children.

A few months ago I followed the first irrigation with a solution of penicillin (1,000 units per cubic centimeter of physiologic saline solution), but I have discarded this procedure because results were equally satisfactory using only the vasoconstrictor solution.

In addition to giving local treatment otolaryngologists must cooperate closely with the family physician or pediatrician in the general care of the child. Warm clothing, plenty of rest, adequate diet, and avoidance of groups of children with upper respiratory infections is of paramount importance.

SUMMARY

Prolonged colds in children are usually cases of sinus infection.

Diagnosis of sinusitis in children can usually be made without much difficulty if proper attention is paid to the history and examination.

Conservative treatment of sinus infection is of major importance.

All children with repeated colds should have the benefit of a good rhinologic study.

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ABSTRACT OF DISCUSSION

DR. JAMES P. ADERHOLD, San Antonio: Dr. Barkley has presented an excellent resume of the factors involved, and a sensible and conservative method in the handling of a problem encountered daily in the practice of otolaryngology.

The role of allergy in sinusitis of children is so pronounced that careful surveillance including repeated cytologic studies should be carried out in every suspicious case. It should be remembered that in early childhood foods are frequently the offending allergens.

Until a specific against the virus of the common cold is discovered, it behooves the physician caring for the diseases of the paranasal sinuses to do everything within his power to prevent the initiation of bacterial infections. Careful attention should be paid to the nasopharynx, for experience has proved that within the minute crypts of lymphoid tissue, stasis occurs, followed by cellular invasion of the virus. Subsequently, bacterial infection with direct extension to one or more sinuses is not uncommon. Such lymphoid tissue, if present in any sizable amount and accessible, should be removed surgically. Otherwise its removal should be effected by other means such as radium or roentgen ray. The judicious use of chemotherapy and antibiotic therapy in conjunction with the routine described by Dr. Barkley is worth while.

SURGICAL TREATMENT OF LACRIMAL DRAINAGE SYSTEM

EVERETT R. VEIRS, M.D., Temple, Texas

SURGICAL treatment of a blocked drainage system of the eye is often simple and gratifying. Some conditions, however, are difficult to correct and final results are not all that one could wish.

In the age group from 5 to 40 are relatively few patients needing surgery on the tear sac or canaliculi. Fewer cases of dacryocystitis are seen in private than in charity patients as the disease is more prevalent in the lower income group.

For many years there have been advocates for early probing of the lacrimal duct in infants and advocates for late probing, with six months the apparent dividing line between early and late. Both groups have good arguments. However, it should be remembered that the condition of individual infants of the same age varies. The epiphora of most infants subsides spontaneously; only a small percentage have a frank dacryocystitis. A larger number with an obstructed nasal lacrimal duct have a noticeable conjunctival injection, which may cause a considerable amount of concern to the parents. I recommend the probing of lacrimal ducts in infants who have a frank dacryocystitis and in patients who have an appreciable degree of conjunctivitis, regardless of age. The majority of cases are cured with one probing, which may be performed with or without anesthesia.

Strictures of the canaliculi may be trying. Dilatation, when it can be performed, must be repeated, and even then results are often equivocal. Recently I have inserted into the lower canaliculus a rod of plastic material about the size of a no. 4 Bowman probe. Plastic material substituted for metal during the war to bind small books is about the right size. Also, the plastic material Styron Monofilament,* .043 inch in diameter, can be used. Insertion is easy after the canaliculus is dilated. A suture or adhesive holds the rod in place on the lower lid for several days (fig. 1). The results seem better than repeated probings, and the insertion is certainly less trying on the patient.

Complete stricture is difficult to correct. Morgenstern's[1] method of making a new canaliculus with a needle and leaving horsehair in the new channel for several days may be tried. I have never used this procedure but it is worth consideration. Substitution of the plastic rod described above for the horsehair might be feasible.

From the Department of Ophthalmology, Scott and White Hospital. Read before the Section on Eye, Ear, Nose and Throat, State Medical Association of Texas, Annual Session, San Antonio, May 4, 1949.

**Manufactured by the Dow Chemical Company, Midland, Mich.*

Streptothrix of the lower canaliculus is easily overlooked. In such a condition the inner fourth of the lid is swollen and a little injected, and the patient complains of epiphora and redness of the eye. The diagnosis is simple, with expression of concretions from the canaliculus. The physician may be able to express manually all the concretions if the patient is not too sensitive. I have not been entirely successful in removing them with a small curette through a dilated punctum, as recommended by Thygeson. The canaliculus should, of course, be lavaged with penicillin or sulfa solution after the concretions have been removed.

Closing the lower canaliculi in a severe degree of keratoconjunctivitis sicca is another minor surgical procedure that gives excellent results. Severe cases are usually seen in women past middle life and are often associated with severe arthritis. These patients with a marked deficiency of lacrimal secretions are not common, but unfortunately their condition is usually misdiagnosed and antiseptics are prescribed for them. Closure of the canaliculi with diathermy is simple and takes only a few minutes; relief is immediate. Many of these patients will state that their eyes have caused them more discomfort than the arthritis.

The diagnosis of dacryocystitis is usually simple. The frankly suppurative cases can usually be diagnosed by pressure over the tear sac. When the lower canaliculus is irrigated and fluid returns through the upper punctum, one can be sure, of course, that the canaliculi are patent. Roentgen rays, after the injection of Lipiodol or other opaque solutions, are sometimes useful but only occasionally necessary. Rare cases of tumor, syphilitic, or tuberculous involvement can usually be diagnosed only after the tear sac is exposed.

It is desirable to have the tear sac infection under abatement before operation. One preoperative lavage of the sac with penicillin solution will usually temporarily clear most sacs of pus. I have operated in cases in which the sac contained pus. Healing was uneventful, which is at least in part the result of the rich blood supply in the area and of good drainage into the nose.

DACRYOCYSTORHINOSTOMY

As long as the desired results are achieved, it makes little difference as to the type of operation used. I have never performed an intranasal or West type of operation. It would seem technically more difficult than the external approach. I doubt that the surgeon

can consistently make as large an opening from the nose into the tear sac as with the external approach. The objection to the scar from the external approach hardly bears much weight, as a scar that is noticeable need not be left.

Regardless of the choice of operation for dacryocystitis, the one, all-important consideration is to make the opening into the nose large. If this principle is kept in mind, results will be satisfactory, regardless of the type of flap or sutures used. As a corollary, if the opening is made small, satisfactory drainage may not ensue, regardless of how well the operation was performed otherwise. To secure a large opening through the mucous membrane, a large, bony opening must first be made. Good results likely can be obtained if the surgeon slices away the medial half of the mucous membrane tear sac and the corresponding area of nasal mucous membrane, thus doing away

FIG. 1. Adhesive tape holds in place a plastic rod inserted into the lower canaliculus.

with mucous membrane flaps as well as sutures. I have performed this type of operation with gratifying results.

Either local or pentothal sodium anesthesia is satisfactory. Obtaining good exposure is not difficult if an incision about an inch in length is begun just medial and below the inner canthus and carried boldly down to the bone. With a small periosteal elevator the sac is freed from its medial and anterior bony wall. The bony wall separating the sac from the nasal membrane may be removed by drill, chisel, or bone-biting forceps; a drill works nicely.

If a mucous membrane flap is desired, my method of choice is the one recommended by Traquair.[3] The sac is incised vertically along its anterior surface below the entrance of the canaliculus, and the inner half of the sac is removed. It is important not to cut into the sac too close to the opening of the canaliculus. A rectangular flap of nasal mucous membrane corresponding to the margins of the hole and hinged anteriorly is then cut. Catgut sutures placed in the anterior edge of the outer wall of the sac are then passed through the free corners of the nasal mucous membrane flap and tied. Little postoperative care is needed. If the operation is properly performed, it seems doubtful that postoperative lavage is necessary.

Muldoon's[2] method for restoration of the patency of the nasal lacrimal duct by a Vitallium tube is worth serious consideration. I have never used this method but simplicity of the procedure certainly makes it recommendatory. It would seem especially applicable to elderly persons and others for whom it is desirable to spend the shortest possible time with the operation.

SUMMARY

A brief resume of the surgical treatment of a blocked tear drainage system is presented; a method to keep partially stenosed canaliculi open after dilatation is described; and dacryocystorhinostomy is briefly outlined.

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ABSTRACT OF DISCUSSION

DR. W. E. MULDOON, San Antonio: Dr. Viers's suggestion for inserting a plastic rod filament into the canaliculus to maintain dilatation seems to be good. Certainly the plastic material should be less likely to cause pressure necrosis than metal and probably easier to hold in place.

Another condition causing blockage of the tear drainage, which was not mentioned, is congenital absence of the puncta. I have had 2 cases of this. In one, a 15 year old girl, a small incision with a Ziegler knife made at the summit of the small elevation where the punctum should be entered a normal canaliculus, and epiphora was relieved immediately. In the second, a 6 year old girl, a similar procedure resulted in failure because the canaliculus could not be found.

In the original Toti operation a portion of the medial wall of the sac was removed and opposite it a somewhat larger, oval aperture was made in the bony wall of the nose. The exposed mucous membrane of the nose was resected. No sutures were used except to close the skin. According to Arruga, the percentage of cures by this method was only from 10 to 15 per cent. In the Mosher modification of the Toti operation, more of the sac was removed and the hole into the nose made larger. Also, the anterior cut edge of the sac was sutured to the periosteum of the anterior edge of the bony hole. In most operators' hands this modification resulted in a much higher percentage of success, probably the result of either the larger opening

made into the nose or the better approximation of the two holes with the sutures.

The Dypuy-Detemps and Bourguet operation differed from the preceding ones in that the sac and nasal mucous membrane were incised, not excised. Anterior and posterior flaps which were carefully sutured were fashioned, thus lining the passage between the sac and the nose with mucous membrane. The technique is difficult but advocates claim a high percentage of permanent cures.

A third type of operation, first performed by Circione in 1904 and later developed further by MacMillan and Stock, consists of exposing and isolating the sac, cutting it off at its juncture with the bony canal, and transplanting it through the bony opening into the nose.

There are literally hundreds of variations in technique of these three basic operations, intended either to make the procedure easier or to increase the percentage of successful results. The principal cause of failure in dacryocystorhinostomy is closure of the opening into the nose. If, as Dr. Viers states, the way to avoid closure is to make the bony opening large, this procedure would certainly be much simpler than the Dypuy-Detemps operation.

The use of styles and tubes in the nasolacrimal duct to restore patency is an old procedure but the choice of materials doomed it to failure. Most tubes and styles were removed later because if not removed, they caused a large amount of reaction in the tissues or disintegrated. The work of Venable and Stuck showed that this reaction to metals buried in the tissues was caused by either electrolytic action of the alloy used or chemical action of body fluids on the metal. Vitallium was found to be chemically and electrolytically inert and therefore well tolerated. Time alone will tell in what percentage of cases the insertion of a Vitallium tube in the nasolacrimal duct results in permanent restoration of drainage. Certainly in some cases it has functioned perfectly. It is sure to result in failure if used where the stricture is in the sac itself rather than in the bony duct. Also, it will not work if the tube used is too small or has too narrow a projection at the upper end, since such a tube will eventually slip into the nose.

The physician should be careful to insert the tube into the bony duct through an opening into the sac and not carelessly push it alongside the wall of the sac. The advantage of intubation is its simplicity; once the sac is well exposed the operation is practically over, whereas in dacryocystorhinostomy the operation is just beginning.

SURGERY OF THE EYE IN CHILDREN

RUBY K. DANIEL, M.D., F.A.C.S., Dallas, Texas*

SURGERY of the eye in children is concerned chiefly with hereditary defects and trauma. So far as the mechanical aspects are concerned, the principles are the same as in surgery of the eye in adults, but the applications involve variations of paramount importance.

There are not a great number of varied conditions requiring eye surgery in children; the major group comprises anomalies such as crossed eyes or muscle imbalance and congenital cataracts. Such defects as buphthalmos occur less frequently, and a medley of other congenital defects based chiefly on embryonal fusion failure are even rarer.

MUSCLE IMBALANCE

General anesthesia is used as a rule for squint surgery, and at times the observer finds a great disproportion in the degree of squint or imbalance in the eyes under normal conditions and when the child is under a general anesthetic. The surgeon must keep a mental picture of the behavior of the eye muscles under ordinary conditions, but even so, at the operating table he may be forced to modify his original plan because of the great disparity.

To determine the true state of muscle function during the preliminary examination of a child requires so much time and patience that if the surgeon is not prepared to spend this time or if he lacks the patience, he should not attempt this type of surgery.

Inasmuch as most surgery in children is done under general anesthesia, a well trained anesthetist is an essential in the smooth conduct of the operation. A safe anesthetic skillfully given relieves the surgeon of mental tension. All too often the child's face is covered and the operative field encroached upon or obstructed by the anesthetic equipment. For all small children I eliminate nitrous oxide and other gases given by a closed method and request instead an open cone method of induction with ether, changing later, when the pharyngeal reflexes are abolished, to intra-oral or intrapharyngeal ether vapor by nasal tube or an air passage tube in the mouth. Usually a small nasal catheter or a small J tube in the corner of the mouth with an open airway is preferable. Also, for the smallest children, I eliminate sedatives and atropine hypodermic injections as both can give difficulty in certain cases.

CATARACTS

Congenital cataracts are so often associated with other developmental defects that the ophthalmologist should never be too optimistic in predicting the outcome of the surgery. If the eye is of normal size and the anterior chamber is of normal size and shape, if the iris appears normal and there are no blood vessels coursing along its surface, if the pupil reacts readily to light and can be well dilated with atropine, then the prognosis is much more favorable. In such pa-

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tients, the reaction to surgery is better and the end results are more satisfactory from the standpoint of vision, function, and appearance than when other anomalies are found in the anterior segment of the eye. There is also the hazard of defects back of the lens, such as coloboma of the retina, choroid, and optic nerve, which cannot be visualized or suspected.

The earlier the baby can be operated upon and the earlier a clear fundus can be seen, the better the prognosis for the development of acute vision for that eye. As soon as a clear view of the fundus can be obtained, the corrective and compensating lenses should be prescribed. It is gratifying to observe how well these infants and small children wear their cataract lenses with bifocal segments.

While the infant or young child is still in the operating room, reinforced surgical dressings and restraining dressings should be applied routinely. Securely fastened head bandages which put mild pressure on the eye dressings are preferable. Strong splints to keep the child's elbows straight and yet not hurt his arms are a valuable adjunct to the surgeon. Seldom is the physician called out at night to replace bandages if they are carefully and meticulously placed before the child leaves the operating room. Every surgeon realizes that a child will take off the bandages if he can and that as a rule he thrashes about after a general anesthetic until he is weary and settles down to sleep. I believe that excitement and noice should be cut to a minimum and too many visitors, especially those who are smoking, should not be allowed in the room. I try to train small children to be my assistants, and after a short time they often help in the removal of the adhesive bands when the dressings are changed.

The choice of suture material is important. I believe the nonabsorbable sutures should be used where at all possible. In my experience white silk or white nylon has been more satisfactory in muscle surgery than the chromic catgut formerly used. There is less reaction around these nonabsorbable sutures; also less skidding and fewer adhesions in the area occur after their use, as far as I can determine. Fine black silk sutures for closing the conjunctiva have also been more satisfactory than the catgut closures. A very fine bite taking only small bits of the conjunctiva on each side of the wound, tying the ends of the suture material firmly together, and leaving one long end to the knot usually means that the child will wink out his conjunctival sutures without difficulty. The longer end of the suture, however, is left about half an inch long so that if it is not winked out, it can be removed readily. I do not believe I have ever had to request a general anesthetic for the removal of nonabsorbable sutures, but I have on several occasions requested a general anesthetic to remove an encysted knot of catgut.

Since the child is thoroughly relaxed with a general anesthetic during an operation, a great deal of the turning or rotating of the eye can be done with the knee of a muscle hook. This procedure saves grasping of the conjunctiva with a toothed tissue forcep which would cause hemorrhage, edema, and trauma in that area. If the anesthesia is light enough, there is considerable tone in the eye muscles, which is of advantage in observation, particularly at the end of the surgical procedure.

ABSTRACT OF DISCUSSION

DR. V. R. HURST, Longview: It is well that Dr. Daniel stressed the responsibility of the ophthalmologist in anesthesia. This point was tragically brought to our minds a few months ago when the small child of one of our leading Texas surgeons died after a squint operation while having the suture removed under cyclopropane anesthesia. I agree thoroughly with Dr. Daniel's statement that ether can give the surgeon the most ease of mind and let him concentrate on surgery.

Unlike Dr. Daniel, I believe in sedatives as I feel that children do well with the quick-acting barbiturates, which cause them to require less general anesthesia and eliminate much discomfort for the few hours following surgery.

Eye Discomforts and Emotional Upset

Emotional upset from a love affair or a new job may precipitate eye discomforts, writes a Honolulu doctor in the October issue of the *Archives of Ophthalmology*. Dr. Wayne W. Wong believes that characteristic symptoms of an ocular neurosis are extreme sensitivity to light, pain in the eyes, and inability to use the eyes for close work such as reading or sewing, even for short periods.

Dr. Wong points out that such discomforts of the eye and other symptoms may be caused by certain stresses of living.

"Among such situations of stress are initiation into a job, a love affair, disappointment in vocational or financial affairs, pressure in establishing a place in the economic and social world, a death in the family, and marriage," he writes.

He describes the patient suffering from such symptoms as being usually slenderly built, with women predominating over men. "They dress neatly and well despite their actual economic situation. Their habits and actions are orderly and well planned. They are endowed with a great deal of energy and 'push' and appear tireless in their pursuit of the goal that 'everything be just so.'"

"These patients usually have a low refractive error," writes Dr. Wong. "They will be found to be hypermetropic. Their visual acuity is 20/20 without glasses. Lenses give only temporary relief, after which the patient feels better without them."

The cause of the high prevalence of tuberculosis in mental hospitals is failure to recognize or seek out cases of tuberculosis among incoming patients who then transmit the disease to other patients during residence in the hospital. The situation can be improved only by segregating and treating the tuberculous patients discovered by survey. —Waldo R. Oechsli, M. D., Pub. Health Rep., Jan. 7, 1949.

CASE REPORTS

CONGENITAL ATRESIA OF POSTERIOR NARES

J. CHARLES DICKSON, M.D., Houston, Texas

MUCH has been written on congenital atresia of the posterior nares. Complete review of the literature has been reported by Wilkerson and Cayce,[20] Schwartz and Isaacs,[13], Cinelli,[3] and Boyd.[2]

The first case was described by Otto[2] in 1829 and was discovered at autopsy. Since then numerous others have been reported. The frequency varies. Stewart[16] reported 6 cases at the Royal Infirmary, Edinburgh, from 1907 to 1926. Kazanjian[7] found 10 cases out of 62,228 admittances to the Massachusetts Eye and Ear Infirmary. Pastore and Williams[9] at the Mayo Clinic from 1903 to 1939 found 12 cases.

The anatomy involved is an obstruction between the posterior nares and the epipharynx. It may be complete or partial, one sided or bilateral, and membranous, osseous, or mixed.

There are several theories as to the cause. Boyd[2] gave them as follows: (1) Poliferation of the palate bone upward, backward, and medially. (2) Extension medially of the vertical plate of the palate bone. (3) Failure of the bucconasal membrane to rupture. If mesoderm is between the layers, bone develops. (4) Persistence of the buccopharyngeal membrane with growth of the palate back to this membrane.

The question of heredity has been discussed by Stewart,[16] who reported 3 cases in one family. The cases reported here include twins, both of whom had the condition.

The symptoms and findings are all based on inability to get air through the nose. These include nasal block, nasal discharge, sinus infection, nasal tone to the voice, atrophy of turbinates, high arch to the palate, irregular teeth, anosmia, dry nasopharynx, inability to eat, and cyanosis in newborn infants. Most authors do not think the ears are involved.

In the differential diagnosis the physician has to consider nasal polyps, enlarged adenoids, tumors of the nose and throat, and cicatricial stenosis of the epipharynx.

From the Department of Otolaryngology, Baylor University College of Medicine.

Read before the Section on Eye, Ear, Nose, and Throat, State Medical Association of Texas, Annual Session, San Antonio, May 3, 1949.

The diagnosis is made on the history; the inability to breathe through the nose; the constant nasal discharge; the finding of a block to the posterior nares; the study by roentgen ray after instilling lipiodol; and the seeing of the obstruction by anterior view or by the postnasal mirror.

Numerous types of operations have been advised for this condition. The fact that so many different procedures are advanced indicates that none of them is too successful. The age of the patient has an influence on the kind of operation. The older the patient the more likely it is that the operation will succeed. Richardson[11] expressed the belief that the operation should be done when the patient is 2 years of age. However, if the condition is bilateral, or even if unilateral in the newborn or young infant, an attempt to provide an opening for the child to eat and live may be necessary.

Emmert[5] in 1853 advised using a curved trochar and rasp to remove the obstruction. Von Schrötter[18] in 1885 used the galvano cautery. Hubbel[6] in 1886 reported a case in which he had taken out the bone with a hand drill and put in tubes as postoperative treatment. Uffenorde[17] in 1908 tried taking down the partition with a chisel and curette. White[19] in 1919 also used chisels, curettes, and rongeur. Blair[1] in 1931 and Cinelli[3] in 1940 advised applying skin grafts on a rubber tube after making as large an opening as possible. Donnelly[4] in 1938 recommended a full thickness graft. Stewart,[16] White,[19] and Phelps[10] in addition to removing the bone and mucous membrane of the obstruction also removed the back part of the septum. Kazanjian[7] divided the columella, freed the lower edge of the septum, and turned the whole nose up to reach the partition. Blair,[1] Ruddy,[12] Steinzeug,[15] Schweckendiek,[14] and Neto[8] used a V shaped incision through the palate to get a direct view of the obstruction.

The postoperative care should include careful cleaning of the nose, repeated observation of the operative area, and removal of granulations and adhesions. This is done by forceps, curettes, and caustics.

Four cases, 3 seen in 1940 and 1 in 1948, are reported hereinafter. The operative procedure of the 1948 case is given in detail.

CASE REPORTS

CASE 1.—N. J. R., a 13 year old girl, presented a history of being unable to breathe through the left side of her nose since birth. A bony partition was found in the posterior nares on the left side. The ears and hearing were normal. The left antrum was infected. The bony partition was removed with chisels and forceps. Postoperative treatment consisted of cauterization of granulation tissue in the operative area and removal with forceps of a membrane that tried to form. Treatment was carried out for three months. An examination January 4, 1949, eight years after the operation, showed a large opening in the posterior nares with scar tissue around the edges. The sinuses appeared normal.

This patient had a good result after removal of the block. It was necessary to cauterize repeatedly.

CASE 2.—Janell H., a five weeks premature infant, was seen soon after birth. It was observed that she could not breathe through her nose and that she had a hard time swallowing. Cyanosis developed easily. These symptoms were caused by an obstruction of both posterior nares. On the fourth day after delivery of the infant, the membrane was opened by forceps and a slender rasp. Little bone was felt. A tube was placed in one side for feeding. The openings were dilated daily with a sound. In spite of this procedure the openings closed. The baby gained slowly and after two months weighed 2 pounds more than at birth. It was necessary to feed the patient with a stomach tube.

Eleven weeks after birth a diarrhea started and the baby rapidly lost ground, dying within four days. At autopsy it was found that a hard bony partition completely closed one posterior nares and a membranous partition closed the other. (The latter was the side the tube had been in so long.) Also found was a bilateral suppurative otitis media and a bilateral cystic ovary.

This patient made a slight improvement after the posterior nares were opened, but it was impossible to keep the openings patent. Death resulted when a gastrointestinal infection started. The repeated soundings and irritation of the posterior nares seemed to cause a poliferation of new bone and membrane which closed the openings.

CASE 3.—Jacqueline H., twin of Janell H. and a five weeks premature infant, was found on examination to have an obstruction closing both posterior nares. An attempt was made to remove the obstruction with forceps and rasp. Tube feeding through the nose was begun. The openings made in the obstruction were sounded daily for several weeks. In spite of this procedure the obstruction reoccurred and feeding had to be carried out by tube through the mouth. Under this procedure the child made good progress and at the end of twelve weeks, left the hospital. She had gained 4 pounds, 2 ounces. The parents continued the tube feeding at home. On January 4, 1949, eight and one-half years after the birth of Jacqueline H., the mother stated that the child was normal except that she had to breathe through her mouth. There had been little illness and she seemed well adjusted.

This baby, unlike her sister, was able to gain weight and live.

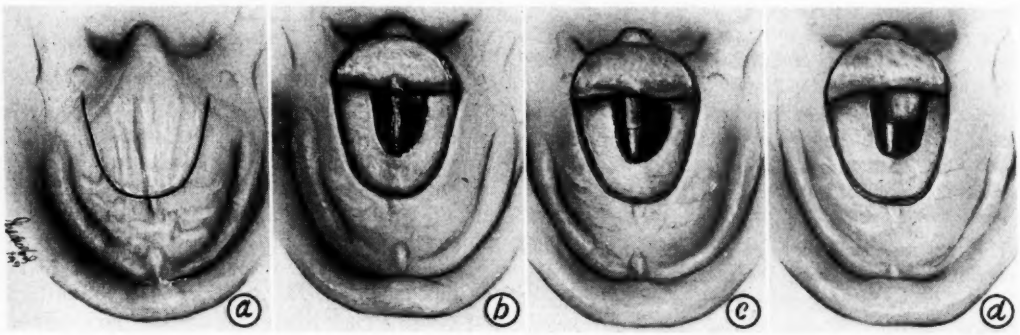

FIG. 1. Steps in an operation to correct congenital atresia of posterior nares.

a. An incision, U shaped, was made through the mucous membrane of the hard palate. The membrane was elevated, and the bone of the hard palate was removed, exposing the septum and the obstruction to the posterior nares.

b. The mucous membrane on each side of the septum and on each side of the bony partition was elevated. The bony partition of the obstruction and the bony part of the septum were removed. The mucous membrane of the right side of the septum and the anterior side of the bony partition was destroyed.

c and d. The mucous membrane on the posterior side of the bony partition was cut free superiorly and laid forward against the lateral, raw, exposed bone where the bony partition had been removed. The membrane from the left side of the septum was laid against the bare bone on the superior surface of the new opening. The new opening of the posterior nares was then covered superiorly and laterally by an intact mucous membrane. Medially the septum had been removed. This procedure gives a large opening with little raw bone surface exposed and thus the scar tissue formation is greatly reduced.

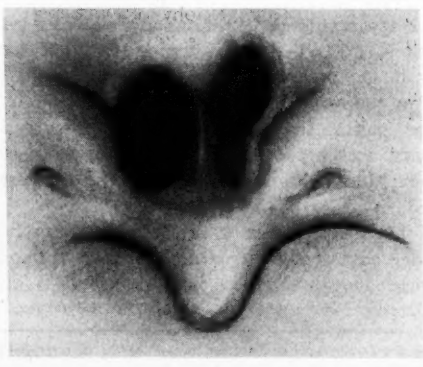

FIG. 2. After healing the posterior nares show a good opening on each side.

CASE 4.—N. W., an 8 months old boy, was presented with the history of being born with an obstruction of the right side of the nose. The baby had had difficulty in eating and did not develop as rapidly as he should. When he was 6 months of age, the obstruction had been removed but promptly reoccurred. An examination showed a block to the posterior nares which could not be penetrated with a probe.

At a second operation a curved incision was made in the palate anteriorly, and the soft tissue was elevated to the edge of the hard palate. Three-eighths inch of the posterior part of the hard palate was removed. The posterior end of the septum was located, and a submucous resection was done on the posterior ⅜ inch, leaving the mucous membrane intact on the left side. On the right side the obstruction was found to consist partly of bone and partly of membrane. This was removed with forceps and chisel, care being taken to leave intact the membrane on the posterior surface. A flap was next preparted from septal mucosa of the left side. This was laid on the right superior raw surface. The flap from the mucosa of the posterior surface of the bony partition was laid on the lateral raw area of the right side (fig. 1). A vaseline gauze pack was placed in the posterior nares to hold the flaps in place. The soft tissue of the palate was replaced and sutured. An iodoform gauze pack was sutured over the incision in the palate. Two days after the operation the vaseline pack was removed. The iodoform gauze pack in the palate was taken out in three days. Postoperative treatment consisted of Neosynephrin, nasal suction, and an occasional removal of granulation tissue with a small forcep.

Fourteen months after the operation an examination was done under a general anesthetic. It was found that there was a good opening in both sides. The right was smaller and showed considerable scarring (fig. 2). The child had no difficulty in breathing. He has gained weight normally and is now in good physical condition.

One operation had failed to relieve the condition. The second operation going through the palate allowed direct vision. In this way flaps could be prepared and used. I believe that this made it possible to relieve the obstruction.

SUMMARY

There is no one successful treatment for the congenital deformity of atresia of the posterior nares.

It is a serious condition at birth if bilateral and if unilateral may retard the growth of the child.

There is little chance of a successful operation on infants if only forceps and curettes are used. The surgeon has a much better chance to succeed if a direct approach is made through the hard palate to remove the obstruction, using flaps from the mucous membrane of the septum and obstruction to lay over the raw surface.

In older children and adults it is possible to remove the obstruction by working through the nose with a follow-up treatment to keep down granulation and scar tissue.

I would like to acknowledge my indebtedness to Dr. Thomas D. Cronin, who assisted with the operation and the postoperative care in case 4.

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ABSTRACT OF DISCUSSION

DR. CHARLES W. TENNISON, San Antonio: When the posterior covering has been preserved, flaps of it used as a modification of the "Z plasty" probably will prevent the subsequent contracture of the opening produced in the transpalatine approach.

"The Road Ahead" Condensed

"The Road Ahead" by John T. Flynn, which served as the basis for a Current Editorial Comment in the December issue of the JOURNAL, appears in the February issue of the *Reader's Digest* in condensed form. The complete book in a paper bound edition is being offered during February and March by the Committee on Constitutional Government, 205 East Forty-Second Street, New York 17, at a special price of 50 cents each on orders of two or more copies. The regular price is $1 per single copy, 70 cents per copy for from two to fifteen copies, and 60 cents per copy for from twenty-five to 100 copies.

NEWS

COMING MEETINGS AND CLINICS

State Medical Association of Texas, Fort Worth, May 2-4, 1950. Dr. G. V. Brindley, Temple, Pres.; Dr. Harold M. Williams, 700 Guadalupe St., Austin, Secy.

American Medical Association, San Francisco, June 26-30, 1950. Dr. Ernest E. Irons, Chicago, Pres.; Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secy.

NATIONAL AND REGIONAL

American Academy of Allergy, Los Angeles, March 6-8, 1950. Dr. Will C. Sprain, New York, Pres.; Dr. Theodore L. Squier, 424 E. Wisconsin Ave., Milwaukee, Secy.

American Academy of Dermatology and Syphilology. Dr. Francis E. Senear, Chicago, Pres.; Dr. Earle D. Osborne, 71 North Street, Buffalo, N. Y., Secy.

American Academy of General Practice, St. Louis, Feb. 20-23, 1950. Dr. Elmer C. Texter, Detroit, Pres.; Mr. Mac F. Cahal, 406 W. 34th St., Kansas City 2, Executive Secy.

American Academy of Neurological Surgery. Dr. William S. Keith, Toronto, Canada, Pres.; Dr. T. C. Erickson, 1300 University Ave., Madison 5, Wis., Secy.

American Academy of Ophthalmology and Otolaryngology, Chicago, Oct. 8-13, 1950. Dr. Conrad Berens, New York, Pres.; Dr. W. L. Benedict, 100 First Ave. Bldg., Rochester, Minn., Secy.

American Academy of Pediatrics, Chicago, Oct. 16-19, 1950. Dr. Edward B. Shaw, San Francisco, Pres.; Dr. C. G. Grulee, 636 Church St., Evanston, Ill., Secy.

American Association for Thoracic Surgery, Denver, Colo., April 15-19, 1950. Dr. Edward J. O'Brien, Detroit, Pres.; Dr. Brian Blades, 901 23rd St. N. W., Washington, D. C., Secy.

American Association of Genito-Urinary Surgeons, Hershey, Pa., May 26-28, 1950. Dr. J. A. C. Colston, Baltimore, Pres.; Dr. Norris J. Heckel, 122 S. Michigan Ave., Chicago 3, Secy.

American Association of Obstetricians, Gynecologists, and Abdominal Surgeons, Hot Springs, Va., Sept. 7-9, 1950. Dr. S. A. Cosgrove, Jersey City, N. J., Pres.; Dr. L. A. Calkins, University of Kansas Medical Center, Kansas City 3, Secy.

American Cancer Society. Dr. Clifford C. Nesselrode, Kansas City, Kan., Pres.; Mr. Charles D. Hilles, 47 Beaver St., New York, Secy.

American College of Physicians, Boston, April 17-21, 1950. Dr. Reginald Fitz, Boston, Pres.; Mr. E. R. Loveland, 4200 Pine St., Philadelphia 4, Secy.

American College of Radiology, San Francisco, June 25, 1950. Dr. Arthur W. Erskine, Cedar Rapids, Iowa, Pres.; Mr. W. C. Stronach, 20 N. Wacker Drive, Chicago 6, Secy.

American College of Surgeons, Boston, Oct. 23-27, 1950. Dr. Frederick A. Coller, Ann Arbor, Mich., Pres.; Dr. Paul B. Magnuson, 40 E. Erie St., Chicago 11, Secy.

American Congress of Physical Medicine, Boston, Aug. 29-Sept. 1, 1950. Dr. Earl C. Elkins, Rochester, Minn., Pres.; Dr. Richard Kovacs, 2 E. 88th St., New York 28, Secy.

American Dermatological Association, Jasper National Park, Canada, June 18-22, 1950. Dr. Charles C. Dennie, Kansas City, Mo., Pres.; Dr. L. A. Brunsting, 102 2nd Ave., S. W., Rochester, Minn., Secy.

American Gastro-Enterological Association, Atlantic City, April 28-29, 1950. Dr. J. Arnold Bargen, Rochester, Minn., Pres.; Dr. Dwight L. Wilbur, 655 Sutter St., San Francisco, Secy.

American Gynecological Society, White Sulphur Springs, W. Va., May 11-13, 1950. Dr. Ludwig Emge, San Francisco, Pres.; Dr. Howard Taylor, 842 Park Ave., New York 21, Secy.

American Hospital Association. Mr. Joseph G. Norby, Milwaukee, Pres.; Mr. George P. Bugbee, 18 E. Division St., Chicago, Executive Secy.

American Laryngological, Rhinological, and Otological Society, San Francisco, May 25-27, 1950. Dr. Robert C. Martin, San Francisco, Pres.; Dr. C. S. Nash, 277 Alexander St., Rochester 7, N. Y., Secy.

American Neurological Association, Atlantic City, June 12-14, 1950. Dr. Henry W. Woltman, Rochester, Minn., Pres.; Dr. H. Houston Merritt, 710 W. 168th St., New York 32, Secy.

American Ophthalmological Society, Hot Springs, Va., May 31-June 2, 1950. Dr. Parker Heath, Boston, Pres.; Dr. M. C. Wheeler, 30 W. 59th St., New York 19, Secy.

American Orthopedic Association, Virginia Beach, Va., May, 1950. Dr. R. W. Johnson, Jr., Baltimore, Pres.; Dr. C. Leslie Mitchell, Henry Ford Hospital, Detroit 2, Secy.

American Pediatric Society, French Lick, Ind., May 8-10, 1950. Dr. Phillip C. Jeans, Iowa City, Pres.; Dr. Henry G. Poncher, 1819 W. Polk St., Chicago 12, Secy.

American Proctologic Society. Dr. Louis E. Moon, Omaha, Pres.; Dr. W. Wendell Green, 1838 Parkwood Ave., Toledo 2, Secy.

American Psychiatric Association, Detroit, May 1-5, 1950. Dr. George S. Stevenson, New York, Pres.; Dr. Leo H. Bartemeier, General Motors Bldg., Detroit, Secy.

American Public Health Association, St. Louis, Oct. 30-Nov. 3, 1950. Dr. Lowell J. Reed, Baltimore, Pres.; Dr. R. M. Atwater, 1790 Broadway, New York 19, Secy.

American Society of Anesthesiologists. Dr. Rolland J. Whitacre, East Cleveland, Ohio, Pres.; Dr. Curtis B. Hickcox, 188 W. Randolph St., Chicago, Secy.

American Society of Clinical Pathologists, Chicago, Oct. 17-21, 1950. Dr. James B. McNaught, Denver, Pres.; Dr. Clyde G. Culbertson, Indiana University School of Medicine, Indianapolis, Secy.

American Surgical Association, Colorado Springs, April 19-23, 1950. Dr. Thomas Orr, Kansas City, Kan., Pres.; Dr. Nathan Womack, University of Iowa, Iowa City, Secy.

American Urological Association, Washington, D. C., May 29-June 1, 1950. Dr. Carl F. Rusche, Hollywood, Calif., Pres.; Dr. C. H. deT. Shivers, 121 S. Illinois Ave., Atlantic City, N. J., Secy.

Association of American Physicians and Surgeons, Chicago, April, 1950. Dr. Joseph M. Bunten, Pres.; Mr. Harry E. Northam, 360 N. Michigan Ave., Chicago 1, Executive Secy.

International College of Surgeons, U. S. Chapter. Dr. Curtis L. Hall, Washington, D. C., Pres.; Dr. Arnold S. Jackson, 1516 Lake Shore Dr., Chicago, Secy.

National Tuberculosis Association, Washington, D. C., April 25-28, 1950. Dr. R. D. Thompson, La Vina, Calif., Pres.; Dr. H. Stuart Willis, 1790 Broadway, New York 19, Secy.

Radiological Society of North America. Dr. Warren W. Furey, Chicago, Pres.; Dr. D. S. Childs, Medical Arts Bldg., Syracuse 2, N. Y., Secy.

Southern Medical Association, St. Louis, Nov. 13-16, 1950. Dr. Hamilton W. McKay, Charlotte, N. C., Pres.; Mr. C. P. Loranz, 1020 Empire Bldg., Birmingham, Ala., Secy.

Southern Psychiatric Association. Dr. R. Finley Gayle, Jr., Richmond, Va., Pres.; Dr. Newdigate M. Owensby, Medical Arts Bldg., Atlanta, Ga., Secy.

Southern Surgical Association. Dr. Alfred Blalock, Baltimore, Pres.; Dr. John C. Burch, 2112 West End Ave., Nashville, Tenn., Secy.

Southwest Allergy Forum, Memphis, Tenn., April, 1950. Dr. L. O. Dutton, El Paso, Pres.; Dr. Sam Sanders, 1089 Madison Ave., Memphis, Tenn., Secy.

Southwest Regional Cancer Conference. Secy., 209 Medical Arts Bldg., Fort Worth.

Southwestern Medical Association, Phoenix, Ariz., 1950. Dr. I. J. Marshall, Roswell, N. Mex., Pres.; Dr. W. W. Schuessler, 1415 First National Bank Bldg., El Paso, Secy.

Southwestern Surgical Congress, Kansas City, Sept., 1950. Dr. Thomas G. Orr, Kansas City, Pres.; Dr. C. R. Rountree, 210 Plaza Court, Oklahoma City 3, Secy.

Tri-State Medical Assembly, Shreveport, La., 1950. Dr. Charles Gowen, Shreveport, Pres.; Dr. John Walter Jones, 401 E. Fifth St., Texarkana, Secy.

United States-Mexico Border Public Health Association, Chihuahua, April 12-14, 1950. Dr. George W. Cox, Austin, Pres.; Dr. M. F. Haralson, 314 U. S. Court House, El Paso, Secy.

STATE

Texas Academy of General Practice, Fort Worth, Sept. 25, 1950. Dr. H. T. Jackson, Fort Worth, Pres.; Dr. W. P. Higgins, Jr., Medical Arts Bldg., Fort Worth, Secy.

Texas Air-Medics Association, Fort Worth, May 1, 1950. Dr. C. Hansford Brownlee, Austin, Pres.; Dr. C. F. Miller, 906 Medical Arts Bldg., Waco, Secy.

Texas Association of Obstetricians and Gynecologists, San Antonio, Feb. 3-4, 1950. Dr. Howard Smith, Marlin, Pres.; Dr. George F. Adam, 4115 Fannin, Houston, Secy.

Texas Chapter, American College of Chest Physicians, Fort Worth, May 1, 1950. Jesse B. White, Amarillo, Pres.; Dr. Henry R. Hoskins, 514 Medical Arts Bldg., San Antonio, Secy.

Texas Club of Internists. Dr. W. Shelton Barcus, Fort Worth, Pres.; Dr. Victor E. Schulze, 219 S. Magdalen St., San Angelo, Secy.

Texas Dermatological Society, Fort Worth, May 1, 1950. Dr. A. G. Schoch, Dallas, Pres.; Dr. W. Harris Connor, 601 Medical Arts Bldg., Houston, Secy.

Texas Diabetes Association, Fort Worth, April 30, 1950. Dr. J. Shirley Sweeney, Gainesville, Pres.; Dr. W. N. Powell, W. Ave. F, Temple, Secy.

Texas Division, American Cancer Society. Mr. Frank C. Smith, Houston, Pres.; Mrs. Jack Hutchins, El Campo, Secy.

Texas Heart Association, Fort Worth, May 1, 1950. Dr. Merritt B. Whitten, Dallas, Pres.; Miss Roberta Miller, Medical Arts Bldg., Dallas, Executive Secy.

Texas Hospital Association, Galveston, March 7-9, 1950. Mr. Julian H. Pace, Waco, Pres.; Mrs. Ruth Barnhart, 2210 Main St., Dallas, Secy.

Texas Neuropsychiatric Association. Dr. A. T. Hanretta, Austin, Pres.; Dr. David Wade, 510 Capital National Bank Bldg., Austin, Secy.

Texas Orthopedic Association, Fort Worth, May 1, 1950. Dr. Bruce Stephenson, Beaumont, Pres.; Dr. Margaret Watkins, 3629 Fairmount St., Dallas, Secy.

Texas Pediatric Society, Fort Worth, Oct. 6-7, 1950. Dr. J. E. Ashby, Dallas, Pres.; Dr. M. C. Carlisle, 1410 Austin Ave., Waco, Secy.

Texas Public Health Association, Galveston, Feb. 21-24, 1950. Dr. W. R. Ross, Tyler, Pres.; Mr. Earle W. Sudderth, Dallas County Health Department, Court House, Dallas, Executive Secy.

Texas Radiological Society, Dallas, Feb. 3-4, 1950. Dr. J. J. Faust, Tyler, Pres.; Dr. R. P. O'Bannon, 650 Fifth Ave., Fort Worth, Secy.

Texas Railway and Traumatic Surgical Association, Fort Worth, May 1, 1950. Dr. Joe Gandy, Houston, Pres.; Dr. W. F. Parsons, First National Bank Bldg., Fort Worth, Secy.

Texas Rheumatism Association, Fort Worth, Feb. 6, 1950. Dr. Howard C. Coggeshall, Dallas, Pres.; Dr. Robert H. Mitchell, 210 Medical Arts Bldg., Fort Worth, Secy.

Texas Society for Mental Hygiene, Mineral Wells, April 13-14, 1950. Dr. Arthur Schwenkenberg, Dallas, Pres.; Mrs. Elizabeth F. Gardner, 1617 Watchhill Road, Austin 21, Executive Secy.

Texas Society of Anesthesiologists, Fort Worth, May 1, 1950. Dr. Wilbur F. Robertson, San Antonio, Pres.; Dr. H. C. Slocum, 928 Strand, Galveston, Secy.

Texas Society of Gastroenterologists and Proctologists, Fort Worth, May 1, 1950. Dr. G. E. Brereton, Dallas, Pres.; Dr. John S. Bagwell, Medical Arts Bldg., Dallas, Secy.

Texas Society of Ophthalmology and Otolaryngology, Dallas, Dec., 1950. Dr. V. R. Hurst, Longview, Pres.; Dr. John L. Matthews, 929 Nix Professional Bldg., San Antonio, Secy.

Texas Society of Pathologists. Dr. John F. Pilcher, Corpus Christi, Pres.; Dr. A. O. Severance, 205 Camden, San Antonio, Secy.

Texas Surgical Society, Dallas, April 3-4, 1950. Dr. R. J. White, Fort Worth, Pres.; Dr. Truman G. Blocker, 927 Strand, Galveston, Secy.

Texas Tuberculosis Association, Austin, April 7-8, 1950. Dr. Elliott Mendenhall, Dallas, Pres.; Miss Pansy Nichols, 208 E. Ninth, Austin, Executive Secy.

Texas Urological Society, San Antonio. Dr. Hub E. Isaacks, Fort Worth, Pres.; Dr. John M. Pace, 428 Medical Arts Bldg., Dallas, Secy.

DISTRICT

Second District Society, Midland, March 28, 1950. Dr. Charles S. Britt, Midland, Pres.; Dr. Robert M. Golladay, 1203 W. Wall St., Midland, Secy.

Third District Society, Amarillo, April, 1950. Dr. C. B. Jones, Wellington, Pres.; Dr. Roy G. Loveless, 2609 Nineteenth St., Lubbock, Secy.

Fourth District Society, Brownwood. Dr. Gordon F. Madding, San Angelo, Pres.; Dr. S. B. Locker, First National Bank Bldg., Brownwood, Secy.

Fifth and Sixth Districts Society, Corpus Christi, July 7-8, 1950. Dr. Franklin W. Yeager, Corpus Christi, Pres.; Dr. Foy Moody, 1611 Fifth St., Corpus Christi, Secy.

Seventh District Society, Austin, March 8, 1950. Dr. Joe W. Bailey, Austin, Pres.; Dr. John F. Thomas, 907 Capital National Bank Bldg., Austin, Secy.

Eighth District Medical Society, Galveston, March 10-11, 1950. Dr. Leonard Johnson, El Campo, Pres.; Dr. Robert Casey, Texas City, Secy.

Tenth District Medical Society. Dr. J. A. Richardson, Sr., Jasper, Pres.; Dr. Dale H. Davies, Liberty, Secy.

Eleventh District Society, Crockett, March 9, 1950. Dr. E. G. Faber, Tyler, Pres.; Dr. John M. Travis, Jr., Jacksonville, Secy.

Twelfth District Society, Cleburne. Dr. W. K. Logsdon, Corsicana, Pres.; Dr. N. C. Smith, Hillsboro, Secy.

Thirteenth District Society, Mineral Wells, Oct., 1950. Dr. R. L. Daily, Wichita Falls, Pres.; Dr. S. W. Wilson, Medical Arts Bldg., Fort Worth, Secy.

Fourteenth District Society. Dr. J. Shirley Sweeney, Gainesville, Pres.; Dr. L. W. Johnson, 502 W. College St., Terrell, Secy.

Fifteenth District Society, Texarkana, Oct., 1950. Dr. F. V. Mondrik, Longview, Pres.; Dr. Hardy Cook, Longview, Secy.

CLINICS

Dallas Southern Clinical Society, Dallas, March 13-16, 1950. Miss Betty Elmer, Medical Arts Bldg., Dallas 1, Executive Secy.

International Post-Graduate Medical Assembly of Southwest Texas, San Antonio, 1951. Dr. John J. Hinchey, 643 Moore Bldg., San Antonio 5, Secy.

New Orleans Graduate Medical Assembly, New Orleans, March 6-9, 1950. Dr. Woodard D. Beacham, Room 105, 1430 Tulane Ave., New Orleans 12, Secy.

North Texas-Southern Oklahoma Fall Clinical Conference, Wichita Falls. Dr. James T. Lee, Wichita Falls Clinic Hospital, Wichita Falls, Program Chairman.

Oklahoma City Clinical Society Conference, Oklahoma City, Oct. 30-Nov. 2, 1950. Mrs. Muriel R. Waller, 512 Medical Arts Bldg., Oklahoma City 2, Executive Secy.

Post Graduate Medical Assembly of South Texas, Houston, Nov. 14-16, 1950. Dr. Donald M. Paton, Secy., 229 Medical Arts Bldg., Houston.

DALLAS SOUTHERN CLINICAL SOCIETY

The Dallas Southern Clinical Society will hold its nineteenth annual spring clinical conference in the Baker Hotel and Hotel Adolphus, Dallas, from March 13 to 16. Honor guests will be as follows:

DR. PAUL B. BEESON, Atlanta, Medicine.

DR. WILLIS E. BROWN, Little Rock, Obstetrics and Gynecology.

DR. JEROME W. CONN, Ann Arbor, Medicine.

DR. GEORGE CRILE, JR., Cleveland, Surgery.

DR. HARRY EAGLE, Bethesda, Md., Research Medicine.

DR. R. H. FLOCKS, Iowa City, Urology.

DR. RALPH K. GHORMLEY, Rochester, Minn., Orthopedics.

DR. FRANK GLENN, New York, Surgery.

DR. H. DABNEY KERR, Iowa City, Radiology.

DR. JOHN M. MCLEAN, New York, Ophthalmology.

DR. MITCHELL I. RUBIN, Buffalo, Pediatrics.

DR. ROBERT E. VOTAW, St. Louis, Otolaryngology.

Special honor guest will be Dr. Ernest E. Irons, President of the American Medical Association, who will speak at an open meeting the evening of March 13, as will Governor Allan Shivers. Before the meeting an annual executive dinner for honor guests, sponsors, and officials of the society will be held.

The conference will consist of general assemblies, round-table luncheons, a clinical-pathological conference, motion pictures, lectures, symposiums, technical exhibits, and the annual clinic dinner. The registration fee will be $20. Physicians wishing further information may write the Dallas Southern Clinical Society, 433 Medical Arts Building, Dallas 1.

Additional New Hospitals for Texas

A large amount of construction of hospitals and hospital additions is being done in Texas, according to reports received by the JOURNAL. A list of new hospital buildings and annexes was published last month, and following are recent developments in other communities:

In Midland a $50,000 gift has been made to the Midland Memorial Fund for the Midland Memorial Hospital from the J. E. and L. E. Mabee Foundation, Inc., Tulsa, Okla., states the Midland *Reporter-Telegram*. Officials hope the hospital will be completed and put into service early in 1950.

Construction is under way on the new $42,000 Lubbock Cerebral Palsy Treatment Center, states the Lubbock *Morning Avalanche*. The building will be a one story masonry structure providing facilities for physical, occupational, and speech therapy for cerebral palsy patients. The Lubbock Rotary Club is co-sponsor for the project.

Ground breaking ceremonies were held November 20 for the maternity hospital of Baptist Memorial Hospital, San

Antonio, according to the San Antonio *Evening News*. The maternity hospital will be one of three units, a five story, 100 bed hospital, with kitchen and service facilities in the basement. The second and third units, to be added when public support warrants, will contain 250 beds and facilities for out-patient care, clinical diagnosis, surgery, and administration.

In Dallas the city and county have agreed to build a $10,000,000 hospital system, according to the Dallas *News*. Work on the $8,000,000 city-county hospital can begin as soon as the Commissioners Court and the City Council pass formal orders to sell the $10,000,000 worth of bonds voted in two elections for the hospital system. The remaining $2,000,000 will be spent on Parkland and Woodlawn Hospitals and the Convalescent Home.

Bertram's new hospital was dedicated at an open house December 4. The $35,000 structure is community owned and was built and paid for without federal aid. The one story building is air-conditioned and completely equipped with x-ray machines, pharmacy, kitchen, reception room, laboratories, store rooms, doctors' offices, and a switchboard with telephone connections in each room.

The Dolly Vinsant Memorial Hospital was opened in San Benito on November 7, according to the *Valley Morning Star*. The $432,000 structure, named for an Army flight nurse from San Benito who died in active service in a plane crash in France, is staffed by a total of forty doctors, most of whom are from San Benito and Harlingen, but a few from Port Isabel, Rio Hondo, and La Feria.

In Galveston solicitation of bids for construction of Galveston County's million dollar mainland hospital has been authorized by the county Commissioners Court, announces the Galveston *Daily News*.

A maternity wing has been added to Caney Valley Hospital, Wharton, states the Wharton *Journal*.

AMERICAN GOITER ASSOCIATION

The American Goiter Association will meet in the Shamrock Hotel, Houston, March 9-11, for a program on thyroid disease which will be open not only to members of the association but also to any interested physician who is in good standing with his county medical society.

The leading investigators in the field of thyroid disease will participate in the program, which will include such topics as diagnostic methods in the study of human thyroid disease, exophthalmos, the role of the adrenal in thyroid disease, treatment of Graves's disease with iodine 131, cancer of the thyroid, and nontoxic goiters. Dr. Samuel F. Haines, Rochester, Minn., will deliver the presidential address, and the recipient of the Van Meter Award will present his paper. The annual business meeting of the organization will be held the afternoon of March 10.

Dr. James A. Hill, Houston, is chairman of the arrangements committee.

Sterility Award

The American Society for the Study of Sterility is offering an annual award of $1,000, the Ortho Award, for an essay on the result of some clinical or laboratory research pertinent to the field of sterility. Physicians in clinical practice as well as those whose work is restricted to research in basic fields or to full time teaching are eligible.

The prize essay will be presented at the annual meeting of the society in San Francisco, June 24-25. Full particulars may be obtained from the Secretary, Dr. Walter W. Williams, 20 Magnolia Terrace, Springfield, Mass. Essays must be in his hands by April 1.

NEW ORLEANS MEDICAL ASSEMBLY

The thirteenth annual meeting of the New Orleans Graduate Medical Assembly will be held in New Orleans from March 6 to 9. The program will include lectures, symposiums, clinico-pathologic conferences, round-table luncheons, medical motion pictures, and technical exhibits. The total registration fee will be $15.

Guest speakers already announced and their specialties are as follows: Drs. William Boyd, Toronto, pathology; John D. Camp, Rochester, radiology; O. T. Clagett, Rochester, surgery; Stuart C. Cullen, Iowa City, anesthesiology; William J. Dieckmann, Chicago, obstetrics; Parker Heath, Boston, ophthalmology; Francis W. Lynch, St. Paul, dermatology; H. Houston Merritt, New York, neuropsychiatry; Carl A. Moyer, Dallas, surgery; Reed M. Nesbit, Ann Arbor, urology; Emil Novak, Baltimore, gynecology; William J. Orr, Buffalo, pediatrics; John Parks, Washington, D. C., gynecology; Moses Paulson, Baltimore, gastroenterology; Walter G. Stuck, San Antonio, orthopedic surgery; Theodore E. Walsh, St. Louis, otolaryngology; and William Barry Wood, St. Louis, medicine.

A tour after the assembly will feature visits to San Juan, Puerto Rico; the Virgin Islands; Ciudad Trujillo, Dominican Republic; Kingston and Montego Bay, Jamaica; and Havana. A party of doctors and their wives will depart by plane from New Orleans on March 11 and return on March 26. Medical programs, visits to hospitals, and sightseeing will be included in the trip.

Detailed information regarding the assembly meeting and tour may be secured by writing the Secretary, Room 105, 1430 Tulane Avenue, New Orleans 12.

Pediatrics for General Practitioners

Continuous training fellowships in pediatrics designed particularly to meet the needs for general practitioners from rural communities who have a major interest in problems peculiar to infants and children have been developed by the Division of Graduate Medicine and the Department of Pediatrics at the Tulane Medical School, New Orleans.

Applicants should be less than 45 years of age, should have been out of medical school for less than ten years, and should have practiced and have planned to continue practicing in communities having less than 10,000 population. The course of study will continue over a period of not less than three months and will encompass practical clinical experience in all phases of infant and child health, active participation in the undergraduate and postgraduate teaching programs of the Department of Pediatrics, and opportunity for pursuit of individual clinical or research interests on a part-time basis.

Further information may be obtained from the Director of Graduate Medicine, Tulane Medical School, 1430 Tulane Avenue, New Orleans.

Course in Management of Pain

A short postgraduate course in the management of pain will be given by Southwestern Medical School of the University of Texas at the Veterans Administration Hospital, McKinney, immediately after the annual session of the State Medical Association. Members of the medical school faculty and of the hospital staff will offer lectures, demonstrations, seminars, round-table discussions, and panel discussions Friday, Saturday, and Sunday morning, May 5-7.

Registration will be limited to thirty physicians. Application together with the $5 registration fee should be forwarded to Dr F. A. Duncan Alexander, Veterans Administration Hospital, McKinney, before April 15. A limited

number of persons can obtain housing immediately adjacent to the hospital.

Intensive instruction will be given in the following subjects: physiology and psychology of pain; practical techniques for the investigation of major pain problem cases; pain relieving drugs; diagnostic procedures; definitive pain therapy including surgery, blocks, and physical medicine; and special pain problems such as cardiac pain, shoulder pain, and headache.

UNIVERSITY OF TEXAS MEDICAL BRANCH

Dr. Douglas N. Buchanan, pediatric neurologist with the University of Chicago, will be a visiting lecturer at the University of Texas Medical Branch, Galveston, from March 6 to 18. Dr. Buchanan will participate in neurologic clinics, conferences, and seminars under the auspices of the Child Health Program at the Medical Branch. A daily clinic from 9 to 10 a. m., hospital ward rounds each morning, and outpatient rounds each afternoon have been scheduled. Thursday afternoons Dr. Buchanan will assist Dr. C. Christopher Morris II in conducting the Child Guidance Clinic, and Friday noons there will be seminars. Interested physicians have been invited by Dr. Arild E. Hansen, director of the Child Health Program, to be present for these various sessions, all of which will be held in the Department of Pediatrics in the Children's Hospital.

Affiliation of St. Mary's Infirmary, Galveston, with the University of Texas Medical Branch in a two-year residency program for general practice has been announced. The program will be directed by Dr. Emil Klatt assisted by Drs. Weldon W. Stephen, surgery; Edward Schwab, medicine; Francis Garbade, pediatrics; Martin Towler, neuropsychiatry; and J. L. Jinkins, obstetrics and gynecology. Applications and requests for information concerning the program may be directed to Dr. Klatt at St. Mary's Infirmary.

Special research laboratories for the Division of Plastic and Maxillo-Facial Surgery at the Medical Branch will be under the direction of Dr. T. G. Blocker, Jr. Dr. R. I. Stout will be associated with Dr. Blocker in research studies supported by the Sealy and Smith Foundation on tissue repair and body fluid control in severe burns.

C. M. Pomerat, Ph. D., professor of cytology and director of the Tissue Culture Laboratory, was named president of the Texas Academy of Science at its annual meeting in Houston in December.

Dr. T. L. Howard, associate professor of urology at the University of Colorado School of Medicine, Denver; *Dr. L. A. Crandall, Jr.,* director of research at the Miles Laboratories, Elkhart, Ind.; and *Dr. Margaret Hardy,* Cambridge University, England, recently conducted lectures at the Medical Branch.

MEDICAL BOARD EXAMINATION

The Texas State Board of Medical Examiners will hold an examination session June 19-21 at Austin, Dr. M. H. Crabb, 1714 Medical Arts Building, Fort Worth, secretary of the board, has announced. Physicians desiring to take the examinations should apply to Dr. Crabb.

SCOTT & WHITE CLINIC PICTURED IN *LOOK*

Scott & White Clinic, Temple, is featured in the February 14 issue of *Look* magazine as an example of successful group practice. Five pages of pictures in a display entitled "Is This an Answer to Socialized Medicine" follow a patient through the clinic from the moment she first reports to the registration desk until, at the conclusion of a series of examinations and tests, she decides to submit to surgery.

PERSONALS

Dr. Arthur J. Schwenkenberg and Dr. Joseph L. Knapp, Dallas psychiatrists, were elected to the board of regents of the Southern Psychiatristic Association at its meeting in New Orleans in early December, reports the Dallas *Times Herald.* Dr. Schwenkenberg will serve as chairman of the board.

Dr. Milford O. Rouse, Dallas, has been appointed to represent Texas on the council of the Southern Medical Association. He will succeed *Dr. Walter G. Stuck,* San Antonio, whose term is expiring and who is ineligible to succeed himself.

Mrs. T. G. Jackson, wife of the Gorman physician, died December 1, according to the Ranger *Daily Times.*

Dr. Harold Aronson, Dallas, married Miss Frances M. Cabell in Dallas recently.

Dr. and Mrs. Carroll T. Adriance, Galveston, are the recent parents of a boy.

Dr. and Mrs. R. P. Jarrett, Canyon, recently became the parents of a boy.

AMERICAN BOARD OF OPHTHALMOLOGY

Applications to take the 1951 written examination leading to certification by the American Board of Ophthalmology are now being accepted. The applications for the annual qualifying test will be considered in order of receipt until the quota is filled.

Practical examinations for acceptable candidates for 1950 will be held as follows: Boston, May 22-26; Chicago, October 2-6; and the West Coast, January, 1951.

Further information may be obtained from Edwin B. Dunphy, Secretary-Treasurer, 56 Ivie Road, Cape Cottage, Maine.

GASTROENTEROLOGICAL ESSAY CONTEST

For the best unpublished contribution on gastroenterology or allied subjects in 1950 the National Gastroenterological Association will give $100 and a certificate of merit, and to those physicians whose contributions are deemed worthy, certificates will be awarded.

Entries should be limited to 5,000 words, typewritten in English in manuscript form, and submitted in five copies accompanied by an entry letter, and must be received not later than June 1. Entries should be addressed to the National Gastroenterological Association, 1819 Broadway, New York 23.

SMALLPOX VACCINATION

A new method for administering smallpox vaccine was offered at a meeting of the American College of Allergists in St. Louis January 18 by Dr. J. G. Little, Cleburne, Texas. For the past five years Dr. Little has been diluting the drop of virus that comes in the ordinary "vaccine point" up to 1 cc. and injecting one-fifth the amount into the skin of the patient.

Dr. Little reports that the new method has been entirely safe, even with children. It appears to be free from complications and gives almost 100 per cent takes.

Health education and health services go hand in hand. Singly, they cannot do an effective job. Together, they complement each other and form an invaluable adjunct in the over-all health program. Health education without opportunities for medical consultation is sterile. Likewise, medical services exist in a vacuum unless they are called to the attention of the people.—Tula Salpas, USPHS, Indust. Hyg. Newsletter, August, 1949.

RELATION OF ASTHMA AND JAUNDICE STUDIED

Observation of dramatic relief from chronic asthma obtained by patients who contracted jaundice provides a basis for research to help doctors understand the respiratory disease, states an article in the September 3 *Journal of the American Medical Association.*

Dr. Nathan Gorvin of Harvard Medical School, Boston, reports that a program of laboratory and clinical study of the effect of liver disorder on asthma is already in progress. He points out the similarity between alleviation of symptoms obtained from jaundice in cases of chronic asthma and alleviation of symptoms obtained from jaundice in cases of rheumatoid arthritis.

"I have presented three cases of intractable asthma in each of which the development of jaundice was associated with decided remission of symptoms," Dr. Gorvin writes. "One can only speculate as to the cause of this and note the remarkable analogy between the relief obtained in cases of rheumatoid arthritis and that seen in chronic asthma.

"The 'reversibility' of disease processes that frequently are regarded as almost hopeless is of interest. The similarity of the relief obtained in these two groups of diseases immediately raises many questions as to their common denominator and as to the underlying mechanism for this dramatic change.

"Certainly the observation calls for animal experimentation and further clinical study, both of which have already been started."

STELLATE GANGLION BLOCK IN CEREBRAL THROMBOSIS

The technique of stellate ganglion block for cerebral thrombosis is reported in the January 7 issue of *The Journal of the American Medical Association* by two Los Angeles physicians, Drs. Edwin W. Amyes and Seymour M. Perry. Of the 44 patients treated by them, 28 showed improvement in from fifteen minutes to an hour after the first injection of procaine hydrochloride. The doctors noted increased alertness, greater ability to move, improved speech, and better comprehension. In 9 of 10 cases improvement was noted when patients received the treatment in the first six hours after the onset of symptoms, the physicians write.

LIBRARY SECTION

PACKAGE SERVICE

The package library consists of collections of reprints and other periodical material on various subjects, prepared for lending to members of the Association. Request for packages should be addressed "Library, State Medical Association of Texas, 700 Guadalupe Street, Austin, Texas." Twenty-five cents in stamps should be enclosed with the request to cover postage and part of the expense of collecting the material. Packages are allowed to remain in the hands of the borrower for 14 days.

ACCESSIONS

The following additions were made to the Library during January:

Reprints received, 1,210.

Journals received, 318.

Books received, 23.

The 1949 Year Book of General Surgery, by Graham (editor); *The 1949 Year Book of Obstetrics and Gynecology,* by Greenhill (editor); *The 1949 Year Book of the Eye, Ear, Nose, and Throat,* by Vail and others (editors); and *The Arthropathies,* by De Lorimer, from the Year Book Publishers, Inc., Chicago.

Essentials of Orthopaedics, by Wiles, from Blakiston Company, Philadelphia.

Physiology of Thought, by Bailey, from the William-Frederick Press, New York.

Haemolytic Disease of the Newborn, by Pickles; *Principles and Practice of Therapeutic Exercises,* by Kraus; *Congenital Anomalies of the Heart and Great Vessels,* by Dry and others; and *Helpful Hints to the Diabetic,* by Collens and Boas, from Charles C. Thomas, Springfield, Ill.

Proceedings of the First Cancer Conference, by and from the American Cancer Society, New York.

Collected Reprints from the Wilmer Ophthalmological Institute of the Johns Hopkins University and Hospital, by Woods and others (editors), from the Wilmer Ophthalmological Institute, Baltimore.

Acute Medical Disorders, Diagnosis and Treatment, by Murphy, from the F. A. Davis Company, Philadelphia.

Ecology of Health, by Corwin, from the Commonwealth Fund, New York.

Life Among the Doctors, by De Kruif, from Harcourt, Brace and Company, New York.

From the Hills, by Zahorsky, and *Primer of Allergy,* by Vaughan and Black, from the C. V. Mosby Company, St. Louis.

Electrocardiography, by Wolff; *Clinical Pathology, Application and Interpretation,* by Wells; and *Questions and Answers, Medical State Board,* by Goepp and Flippin, from W. B. Saunders Company, Philadelphia.

Handbook of Medical Management, by Chatton and others, from University Medical Publications, Palo Alto, Calif.

Green's Manual of Pathology, by Vines, and *Essentials of Urology,* by Colby, from the Williams & Wilkins Company, Baltimore.

SUMMARY OF SERVICE

Local users, 62.	Borrowers by mail, 137.
Items consulted, 597.	Packages mailed, 129.
Items borrowed, 396.	Items mailed, 785.
	Films loaned, 51.

Total number of items consulted, borrowed, and mailed, 1,778.

LIBRARY NEEDS

The journals listed are needed by the Library of the State Medical Association to complete volumes for binding. Any of these numbers will be acceptable either as a gift or for purchase. It is preferable that the Library, 700 Guadalupe, Austin, be notified regarding items available, and the prices of such items, if any, before shipment is made.

Journals needed by the Library of the State Medical Association are as follows:

American Journal of Roentgenology and Radium Therapy, Vol. 34 (July-Dec.) 1935.

British Journal of Surgery, Vol. 27, No. 1 (Jan.), No. 2 (April) 1939.

Bulletin of John Sealy Hospital, Vol. 1, No. 1 (Feb.), No. 6 (Oct.) 1939.

Calcutta Medical Journal, Vol. 36, No. 3-6 (March-June) 1939.

Industrial Medicine, Vol. 8, No. 2 (Feb.) 1939.

Journal of Bone and Joint Surgery, Vol. 21, 1939.

Journal of Clinical Endocrinology, Vol. 6, No. 2 (Feb.) 1946; Vol. 7, No. 3 (March) 1947.

Journal of International College of Surgeons, Vol. 2, No. 3, 4 (June, Aug.) 1939.

Proceedings of the Society for Experimental Biology and Medicine, Vol. 66 (Oct.-Dec.) 1947.

Proceedings of the Staff Meeting of Mayo Clinic, Vol. 17, No. 27 (July 15) 1942.

Surgery, Vol. 5, No. 4 (April) 1939.

MOTION PICTURE FILM LIBRARY

Motion picture films on medical subjects, 16 mm., both silent and sound, some in color, and suitable for either medical or lay audiences, are available for loan to county medical societies, hospital staffs, or individual physicians, on request. Borrowers will be required to pay only the cost of shipment of the films, by express, with insurance, and for any damage to films in the hands of the borrower.

Request for films should be addressed to "Motion Picture Film Library, State Medical Association of Texas, 700 Guadalupe Street, Austin, Texas." A list of available films, with descriptions, will be furnished on request.

The following motion picture films were loaned by the Film Library during January:

Accent on Use (National Foundation for Infantile Paralysis)—Shriner Rotary Club and Polio Benefit Basketball Game, Shriner.

Anemias (Lederle Laboratories, Inc.)—Baylor Hospital House Staff, Dallas.

Anemia, Erythroblastic (Mead Johnson)—House Staff of Baylor Hospital, Dallas.

Anesthesia, Novocain, in Obstetrics (Winthrop Chemical Company)—Lubbock Memorial Hospital Staff, Lubbock.

Anoxia, Physiology of (Linde Air Products)—Jefferson County Medical Society, Port Arthur.

Appendicitis in Childhood (Mead Johnson)—Interns and Residents of the Surgical Department of Baylor Hospital, Dallas.

As Others See Us (American Hospital Association)—Newton County Memorial Hospital Staff, Newton, and Hendrick Hospital School of Nursing, Abilene.

Bone Marrow (Armour Laboratories)—Baylor Hospital Staff, Dallas.

Bronchial Asthma (E. Fougera and Company)—Hardeman-Cottle-Ford-Motley Counties Medical Society, Quanah.

Congenital Cardio-Vascular Anomalies Amenable to Surgery (Mead Johnson)—Newton County Memorial Hospital Staff, Newton.

Cerebral Palsy, Treatment, Training, and Education (Dr. Herbert Hipps)—Comal Sanitarium Staff, New Braunfels.

Cervical Smears (Dr. Karl J. Karnaky)—Hardeman-Cottle-Ford-Motley Counties Medical Society, Quanah.

Choose to Live (U. S. Public Health Service and American Society for the Control of Cancer)—Alamo Heights Schools, San Antonio.

Conquering Darkness (Hurst Eye, Ear, and Throat Hospital-Clinic)—Gonzales High School Students, Gonzales.

Daily Battle (National Foundation for Infantile Paralysis)—Staff of Comal Sanitarium, New Braunfels, and Rotary Club and School Children, Dublin.

Diphtheria and Croup (Lederle Laboratories, Inc.)—Dr. A. W. C. Bergfeld, New Braunfels.

Doctor Speaks His Mind (American Cancer Society)—James-Watkins Clinic, Wellington.

Esophagogastrostomy, Supra-Aortic, for Carcinoma of the Midportion of the Esophagus (Dr. Philip Thorek, Chicago)—Newton County Memorial Hospital Staff, Newton.

Eyes for Tomorrow (Hurst Eye, Ear, and Throat Clinic)—Gonzales High School Students, Gonzales.

Eyes, Your Children's (British Information Services)—Gonzales High School Students, Gonzales, and Child Guidance Club and Lions' Club, Tahoka.

Feeding the Infant During the First Year (Mead Johnson)—Senior Medical Students on Pediatric Service, Southwestern Medical School, Dallas.

Gastroscopy, Role of, in Gastric Pathology (Harrower Laboratory, Inc.)—Medical Students of the University of Texas, Medical Branch, Galveston.

Golden Glory (Standard Brands, Inc.)—Alamo Heights Schools, San Antonio.

Goodbye, Mr. Germ (Texas Tuberculosis Association)—East Side Elementary School, Yoakum.

Hematology, Animated (Armour Laboratories)—Pre-Medical Students' Society, University of Texas, Austin; Staff of Baylor Hospital, Dallas; and Pre-Medical Students of Southwestern University, Georgetown.

Hepatitis, Observation on (Mead Johnson)—Senior Medical Students on Pediatric Service, Southwestern Medical School, Dallas.

Infantile Paralysis, Your Fight Against (National Foundation for Infantile Paralysis)—Rotary Club and School Children, Dublin.

Lease on Life (U. S. Public Health Service)—Alamo Heights Schools, San Antonio.

Let My People Live (Texas Tuberculosis Association)—Jones-Watkins Clinic, Wellington.

Magic Bullets (U. S. Public Health Service)—Harris College of Nursing, Fort Worth.

Modest Miracle (Standard Brands, Inc.)—Parent-Teachers' Association, Carthage.

New Horizons (National Foundation for Infantile Paralysis)—Shriner Rotary Club and Polio Benefit Basketball Game, Shriner.

On the Firing Line (Texas Tuberculosis Association)—Jones-Watkins Clinic, Wellington.

Poliomyelitis, Sister Kenny Method of Treatment of (Dr. Herbert Hipps)—Rotary Club and School Children, Dublin.

Portacaval Shunt for Portal Hypertension (Dr. Philip Thorek, Chicago)—Newton County Memorial Hospital, Newton.

Pregnancy, Multiple (Mead Johnson)—Dr. R. W. Loveless, Bastrop.

Preventive Medical Program for Children (Mead Johnson)—Dr. R. W. Loveless, Bastrop.

Problem Child (Pet Milk Company)—Gonzales High School Students, Gonzales.

Scabies (British Information Services)—Bastrop Clinic, Bastrop.

Splenic Flexure Carcinoma, Surgical Treatment for, with Solitary Liver Metastasis (Dr. Philip Thorek, Chicago)—Newton County Memorial Hospital Staff, Newton.

They Do Come Back (Texas Tuberculosis Association)—East Side Elementary School Students, Yoakum.

Time Is Life (American Cancer Society)—Jones-Watkins Clinic, Wellington.

Trichomonas Vaginalis and Leukorrhea (Dr. Karl J. Karnaky)—Brackenridge Hospital School of Nursing, Austin.

Tuberculosis, Role of the Public Health Nurse in (Texas Tuberculosis Association)—Parent-Teachers' Association and Students, Lufkin.

Underwater Therapy (American Medical Association)—Parent-Teachers' Association, Carthage.

Urinary Antisepsis, Progress in (Mead Johnson)—Bastrop Clinic, Bastrop.

Urologic Conditions, Diagnosis of (Winthrop Chemical Company)—Gonzales County Medical Society, Gonzales, and Dr. R. W. Loveless, Bastrop.

Varicose Veins and Their Complications (Becton, Dickinson & Company)—Bastrop Clinic, Bastrop, and Dr. R. W. Loveless, Bastrop.

Varicose Veins, Treatment of (G. D. Searle & Company)—Bastrop Clinic, Bastrop.

Vitamins and Some Deficiency Diseases (Lederle Laboratories, Inc.)—Dr. E. F. Weir, Dallas.

When Bobby Goes to School (Mead Johnson)—Dr. F. E. Seale, Tahoka, and St. Antony Parent-Teachers' Association, San Antonio.

You Can Help (Texas Tuberculosis Association)—Newton County Memorial Hospital Staff, Newton.

BOOK NOTICES

[1]Streptomycin, Nature and Practical Applications

Selman A. Waksman, Ph. D., New Jersey Agricultural Experiment Station, Rutgers University, Editor. Cloth, 618 pages. $10. Baltimore, Williams & Wilkins Company, 1949.

This is a well organized book containing the work of those who have done most to develop streptomycin from its early laboratory studies to its most recent uses. Individual topics are discussed by more than fifty men outstanding in their particular fields.

The first half of the book is composed of detailed description of the microbiologic, chemical, antibacterial, and pharmacologic properties of streptomycin, which should be of particular interest to research workers and to those who have a special interest in the drug. The other half is devoted to the clinical aspects of streptomycin. All possible uses are discussed and those diseases in which it is of particular value are elaborated on by well qualified authors. The book is so complete that even the use of streptomycin in veterinary and agricultural medicine is included. The excellent discussion of the use of streptomycin in pulmonary and other types of tuberculosis is the highlight of the book.

The work is too voluminous for the average physician, as more condensed literature concerning uses of the drug is available. Some sections, particularly on tuberculosis, will be quickly outmoded, but the book as a whole should remain a classic on streptomycin.

[2]An Atlas of Amputations

Donald B. Slocum, M. D., M. S., Orthopaedic Surgeon, Sacred Heart General Hospital, Eugene, Ore.; Member of American Academy of Orthopaedic Surgeons; Member of the American Society for Surgery of the Hand; Branch Consultant in Orthopaedic Surgery, U. S. Veterans Administration; Formerly Chief of the Amputation Section, Walter Reed General Hospital, Washington, D. C. Cloth, 562 pages. $20. St. Louis, C. V. Mosby Company, 1949.

Among the many merciless aspects of war is the great loss of limbs which occurs in the combatants. A partially redeeming feature, however, is that this experience leads to improvements in the technique of amputation operations. In this book, Slocum and the other brilliant surgeons who staffed the Army amputation centers during the war have assembled their newly acquired knowledge.

Once again we are reminded that the open (or improperly called "guillotine") amputation is a life saving measure when a limb is badly crushed. The refinements of anesthesia, care of the stump, and preparation for an artificial limb are thoroughly described. Slocum especially stresses conservation of tissue and preservation of function to make the most of the remaining member. Also, new developments in design and construction of artificial limbs are presented in detail.

While this is a large and expensive book, it brings up to date all the known facts about amputations and artificial limbs. The application of this knowledge is therefore facilitated by having all the information assembled in one thorough, complete volume.

[3]An Atlas of the Blood and Bone Marrow

R. Philip Custer, M. D., Director, Laboratories of the Presbyterian Hospital in Philadelphia; Assistant Professor of Pathology, The University of Pennsylvania School of Medicine; Consultant to the Armed Forces Institute of Pathology. Cloth, 321 pages. $15. Philadelphia and London, W. B. Saunders Company, 1949.

The author states in his preface that this book was planned in the hope that it would prove useful to clinicians, clinical hematologists, pathologists, and medical technologists. In the opinion of the reviewer, he has succeeded admirably.

The text, though brief, is well balanced and packed with useful information. It is written in a lucid, straightforward style, which makes for easy reading. A great many useful facts are summarized in the twenty-three tables. Important clinical features, as well as significant laboratory data, are given in addition to discussions and pictures of the various disorders of the blood and bone marrow. There are frequent, brief references to treatment, especially where response to treatment has a bearing on diagnosis.

The illustrations of blood and bone marrow are nearly all photomicrographs at high magnifications, many in color. Practically the same consideration is given to marrow sections as to marrow smears, a point of difference from previous atlases. As a whole the illustrations are excellent, and many of the legends include interesting clinical notes.

The recently standardized hematologic nomenclature is used excepting that relating to the erythrocyte series. No formal bibliography is given but there are occasional references. A good index is included.

This book is highly recommended to those interested in either the clinical or the laboratory aspects of disorders of the blood and marrow, but it should be especially valuable to the hematologist and pathologist.

[4]Atlas of Obstetric Technic

Paul Titus, M. D., Obstetrician-Gynecologist to the St. Margaret Memorial Hospital, Pittsburgh; Secretary, American Board of Obstetrics and Gynecology. Second edition. Cloth, 197 pages. $7.50. St. Louis, C. V. Mosby Company, 1949.

The second edition of Titus' "Atlas of Obstetric Technic" is a valuable guide to the proper performance of obstetric procedures and operations. It represents the life time experience of an obstetrician of the highest order; the practical difficulties so commonly omitted from textbooks and the commonest errors of technique are clearly indicated.

The use of line drawings brings out the essential features

[1]*T. Gabe Coleman, M. D., San Angelo.*
[2]*Walter Stuck, M. D., San Antonio.*
[3]*W. N. Powell, M. D., Temple.*
[4]*Willard R. Cooke, M. D., Galveston.*

of each procedure far more clearly than would be possible in photographs. The minor errors of the lay artist and the frequent lack of proportion in the drawings may be overlooked in view of the effective conveyance of basic principles. It is perhaps to be deplored that a more complete series of illustrations of the developmental variations of the normal bony pelvis was not included.

The text is couched in a graphic style omitting nonessentials. A little more amplification at certain points might be desirable.

[5]Atlas of Peripheral Nerve Injuries

William R. Lyons, Ph. D., Associate Professor of Anatomy, University of California Medical School, and Barnes Woodhall, M. D., Professor of Neurosurgery, Duke Medical School, Durham, N. C. Cloth, 339 pages. $16. Philadelphia and London, W. B. Saunders Company, 1949.

The "Atlas of Peripheral Nerve Injuries" represents an accumulation of data on peripheral nerve injuries sustained in World War II, during which an unprecedented number of these injuries, uncommon in peacetime, were available for study. A correlation of the autonomic, neurohistologic, and neurosurgical aspects is presented in written and pictorial form.

The profuse photographs and photomicrographs admirably demonstrate the neuropathologic findings in completely severed nerves, traumatic nerve lesions in continuity, traction lesions, and associated nerve and vascular lesions. Chapters are devoted to discussion of the optimum time for nerve suture and preferred suture material, disruption of suture site, and reaction to suture material and wrappers. A discussion of nerve homografts and autografts with histologic studies and case reports is of special interest.

[6]A Textbook of Surgery

Frederick Christopher, B. S., M. D., F.A.C.S., Professor of Surgery, Northwestern University Medical School; Chief Surgeon, Evanston (Illinois) Hospital, Editor. Fifth edition. Cloth, 1,550 pages. $13. Philadelphia and London, W. B. Saunders Company, 1949.

In this fifth edition of "A Textbook of Surgery" the author has accomplished a work that presents a completely adequate answer to the question, "What is the best book on surgery to be had in a single volume?" This work is so basically sound, contains so much fundamental material, and covers so thoroughly the whole subject of surgery that it will be found invaluable by both the experienced and the inexperienced surgeon.

The author, a well-known medical writer, has chosen as collaborators a large group of outstanding specialists whose opinions, experiences, and techniques linked with his own make this volume completely authoritative in every branch of surgery. None of the essentials has been omitted.

The content is well arranged. Aptly introducing the material is a treatise on inflammation and wound healing, and with a similar happy choice of arrangement throughout, the book progresses to a practical concluding chapter on anesthesia. Deserving especially favorable comment is the chapter on atelectasis, pulmonary abscess, gangrene, and bronchitis and the one on the liver. The 1,465 illustrations add much to the clarity of the book.

This textbook, well written, with good type and paper, and consisting of a thorough treatise on every surgical problem from the simplest to the most extensive in scope, should be available to every surgeon and should serve, furthermore, as an ideal textbook in medical schools.

[5]*Albert A. LaLonde, M. D., Austin.*
[6]*J. W. Nixon, M. D., San Antonio.*

[7]Cystoscopy and Urography

James B. Macalpine, D. Sc. (Honoris Causa), F.R.C.S. (Eng.), Lately Honorary Surgeon and Surgeon in Charge of the Genito-Urinary Department, Salford Royal Hospital; Consulting Urologist, Christi Hospital and Holt Radium Institute, Manchester, and so forth. Third edition, revised and enlarged. Cloth, 554 pages. $13.50. Baltimore, Williams & Wilkins Company, 1949.

This is a typical British text, well written in the most correct style and English. As a text for those not trained to do urology, and certainly for those who are not in the medical centers of the world, the reviewer feels that it is an excellent publication.

The instruments described for examining the patient with urologic problems by our standards are crude, but if we had been in a war and suffered the tremendous damage that England has suffered, our instruments would probably be no better.

The chapter on "Examination of a Urological Patient" is excellent. The remarks made concerning transurethral prostatectomy do not agree with most ideas in this part of the country. This may or may not be good; time alone will settle these matters.

[8]Oral Bacterial Infection, Diagnosis and Treatment

Lyon P. Strean, M. Sc., Ph. D., D.D.S., F.A.P.H.A., Director of Research, Novocol Chemical Manufacturing Co., Inc., Brooklyn, N. Y. Cloth, 185 pages. $5.50. Brooklyn, N. Y., Dental Items of Interest Publishing Company, 1949.

This title does not fit the book. Oral practitioners will find more of interest in it than others, but it is not adequate coverage of the diagnosis and treatment of mouth infections.

The content might be described as systematic bacteriology with the oral aspects somewhat emphasized. The subject matter is greatly abbreviated, 160 pages of text covering the bacteria, fungi, protozoa, viruses, and other agents infective for man. The matter is least condensed and most readable where infection of the mouth is touched on, and there it is accompanied by informative photographic illustration.

While following the traditional arrangement of a bacteriology text, the book would hardly serve as such. It is too brief for any but an elementary course, and for that, the matter is too detailed. Its brevity also excludes it for reference purposes.

The book will find some uses. The author suggests that it might help students to organize their knowledge for examinations. A busy practitioner may find it useful in bringing quickly back to mind forgotten realms of bacteriology. It is intended primarily for the dental profession.

[9]Fundamentals of Otolaryngology

Lawrence R. Boies, M. D., Clinical Professor of Otolaryngology, Director of Division of Otolaryngology, University of Minnesota Medical School. Cloth, 443 pages. $6.50. Philadelphia and London, W. B. Saunders Company, 1949.

This fine volume on otolaryngology does exactly what the author claims in the preface. It is an excellent textbook of basic instruction in the subject. It follows such a scholarly outline as to make it valuable and easy in the study of the various phases of otolaryngology—pathology, symptoms, physical findings, diagnosis, and treatment. Treatment, although not as extensive as some other phases of the book,

[7]*Hub E. Isaacks, M. D., Fort Worth.*
[8]*William B. Sharp, M. D., Galveston.*
[9]*P. W. Malone, M. D., Big Spring.*

is modern and along the lines generally accepted by the profession.

Several of the chapters, "Complications of Sinusitis" and "Headache" particularly, are alone worth the price of the volume.

[10]Medical Etymology

O. H. Perry Pepper, M. D., Professor of Medicine, University of Pennsylvania, Philadelphia. Cloth, 263 pages. $5.50. Philadelphia and London, W. B. Saunders Company, 1949.

This book contains approximately 4,000 terms which are divided into groups according to subject. Derivations of the words are presented with explanations and comments by the author in an interesting manner. They are well enough explained to be easily understood by a lay person.

Anyone who has given lectures to students will realize immediately the value of this collection, both to student and to lecturer. Although the author states that the collection has been compiled for students of medicine, dentistry, and nursing, this reviewer believes it should be part of the personal library of every physician and should be made available to medical secretaries. It will be of particular value to those who prepare reports of a more specialized nature, such as roentgen-ray and tissue pathology reports.

[11]Industrial Toxicology

Alice Hamilton, M. D., Assistant Professor Emeritus of Industrial Medicine, Harvard School of Public Health, Boston; and Harriet L. Hardy, M. D., Physician to the Division of Occupational Hygiene, Massachusetts Department of Labor and Industries; Instructor, Department of Industrial Hygiene, Harvard School of Public Health, Boston. Second edition. Cloth, 574 pages. $6.50. New York, Paul B. Hoeber, Inc., 1949.

This is a single volume reference work, setting down in a concise but interesting manner the essential manifestations arising from the various toxic materials to which persons may become exposed in their working environment, as well as the principal types of work in which these toxic materials are used. Detailed diagnostic studies, therapeutic procedures, and preventive measures to be applied to the working environment are not presented.

This volume should serve well as a general reference work, particularly for those in the medical profession not engaged in the practice of industrial medicine.

[12]Modern Practice in Ophthalmology

H. B. Stallard, M.B.E., M. A., M. D., F.R.C.S., Surgeon, Moorfields, Westminster and Central Eye Hospital, London; Eye Surgeon, St. Bartholomew's Hospital, London, Cloth, 525 pages. $12.50. New York, Paul B. Hoeber, Inc., 1949.

The editor of this volume, and author of several of its chapters, is an English ophthalmologist with a worldwide reputation. Each contributor is also topflight in his specialty, and the chapters are well delineated. Each chapter is subdivided with subtitles, making reference easy.

This book is intended as a reference for the general practitioner and is not complicated with the minutiae of an extensive work. In the chapter on the anatomy of the eyeball enough embryology is incorporated to give the general practitioner sufficient knowledge of the congenital defects without leading him into a maze. The pathology of the eye includes a simple outline of infections, injuries, metabolic disturbances, tumors, and degenerations. The section on medical ophthalmology is valuable for its conciseness, particularly the division dealing with the neurologic dysfunctions. Inclusion of a long chapter on errors of refraction might be criticized because that is a subject to which the general practitioner devotes no time. The book as a whole emphasizes that clinical application is still important in ophthalmology.

Exception may be taken to several forms of therapy advocated. In the management of uveitis, the author states, "the extravagant claims often made on behalf of protein shock therapy have not been justified by events." The reviewer knows of nō ophthalmologist who does not often resort to this form of therapy in severe cases with better results than with any other type of treatment. The same criticism applies to the author's statement, "In the treatment of trachoma, the sulfonamides have proved disappointing." In this region of the United States no treatment has resulted in such dramatic cures as have the sulfonamides.

These critical observations are made only to call attention to the fact that in a volume of such scope and value, there is little to be noticed with which one cannot agree. The excellence of this volume would make it an asset in the medical library.

[13]Abraham Levinson Anniversary Volume: Studies in Pediatrics and Medical History

Dr. Solomon R. Kagan, Editor; Dr. Isaac A. Abt, Dr. Reuben Friedman, and Prof. Mox Neuburger, Editorial Board. Fabrikoid, 365 pages. $6. New York, Froben Press, Inc., 1949.

As stated by the editor in the preface, it is unusual for any outstanding medical figure to receive the tribute of the dedication of an anniversary volume composed by his friends and colleagues when he is no older than 60 years. However, anyone at all familiar with the life and works of Dr. Abraham Levinson will be in ready accord with the fitness of the publication of this book at this time.

The contributions which make up this volume are from the pens of forty-seven leading pediatricians and medical historians in various medical centers in this country. For the most part, they represent the original work or experience of the writers. Each one is written in a lucid style and exhibits the blessed grace of brevity. Not one fails to reward the reader with the gift of much well authenticated and useful knowledge.

The first sixty pages are devoted to psychiatric and neurologic problems in the pediatric field. The subjects chosen are of reasonably common occurrence but, unfortunately, are commonly overlooked or their gravity is unappreciated in actual practice. The second section deals with the blood and cerebrospinal fluid in both laboratory and clinical phases and reveals some new and timely information in these fields. The third section contains thirteen short essays on general pediatric conditions, each of lively clinical interest and importance. The bibliography is up to date and adequate. The fourth and last section presents seven articles on medical history by men of generally recognized erudition. Here one finds not only genuine entertainment but knowledge to be ever prized as well.

Appended are twenty-nine pages bearing a complete bibliography, to the date of publication, of the medical writings of Dr. Abraham Levinson.

The book is beautifully bound and edited. The reviewer has concluded that the pediatrician, whether researcher, teacher, or practitioner, cannot afford to fail to read this work once or more.

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[10]*Charles F. Pelphrey, M. D., Austin.*
[11]*L. R. Byrd, Jr., M. D., Port Arthur.*
[12]*Bernard B. Friedman, M. D., Corpus Christi.*
[13]*David Greer, M. D., Houston.*

ORGANIZATION SECTION

AMERICAN MEDICAL ASSOCIATION

COORDINATION COMMITTEE ON LEGISLATION

Among the actions taken by the Board of Trustees of the American Medical Association during the clinical session in Washington in December, 1949, was the formation of a Coordination Committee on Legislation in keeping with the request of the House of Delegates at the Atlantic City annual session the previous June. The function of this committee as set forth by the House is to "confer with members of Congress with a view of developing legislation that would meet the objectives of the American Medical Association program in its efforts to solve the problem of making medical care more readily available to the American people."

The following were appointed to serve on the committee: Drs. Harvey D. Stone, Baltimore; J. D. McCarthy, Omaha; F. J. L. Blasingame, Wharton; Dwight H. Murray, Napa, Calif.; W. J. Dattelbaum, Brooklyn; W. H. Huron, Iron Mountain, Mich.; Oscar D. Hunter, Washington, D. C.; and the executive committee of the Board of Trustees, consisting of Drs. James R. Miller, Hartford, Conn., chairman; Edwin S. Hamilton, Kankakee, Ill.; Gunnar Gunderson, La Crosse, Wis.; and Louis H. Bauer, Hempstead, N. Y., ex-officio. Drs. Blasingame and Murray are also members of the Board of Trustees.

This committee plans to meet at least once each month, and oftener if necessary, to consider legislative matters which are of interest to the medical profession. As pointed out by Dr. Blasingame at the recent meeting of the Executive Council of the State Medical Association of Texas, the committee will strive to coordinate the efforts of the American Medical Association with those of other organizations fighting the same battles.

WASHINGTON OFFICE TO MOVE MARCH 1

The Washington office of the American Medical Association will move March 1 to larger quarters, Rooms 300-312 at 1523 L Street, N. W. The new location near the Statler Hotel will provide a complete floor for American Medical Association activities. The old address has been 1302 Eighteenth Street, N. W.

STATE MEDICAL ASSOCIATION

EXECUTIVE COUNCIL HOLDS WINTER MEETING

The Executive Council of the State Medical Association of Texas held its regular winter meeting January 22 in the Stephen F. Austin Hotel, Austin, with Dr. G. V. Brindley, Temple, President, presiding. The council heard progress reports of the various boards, councils, and committees of the Association and presented the first annual award to the General Practitioner of the Year. The 1949 award was given to Dr. J. R. McGee of New Boston.* Governor Allan Shivers assisted in the presentation ceremonies and addressed the council briefly.

Prior to the regular business of the day an address was given by Dr. F. J. L. Blasingame, Wharton, Trustee of the American Medical Association and of the State Medical Association, and a member of the newly formed Coordination Committee on Legislation of the A.M.A., on some of the legislation problems facing American medicine today. Dr. Blasingame pointed out the change in the method of attack from frontal to a flanking maneuver on the part of the administration and the advocates of socialized medicine in Congress by introducing a number of separate bills which added up amount to the omnibus health bill, and appealed to the members of the Executive Council to consider the whole problem with a "sense of consecration . . . a fight to the death as regards socialism." He described the function of the newly formed Coordination Committee on Legislation of the American Medical Association as that of coordinating the efforts of the American Medical Association with those of other organizations fighting the same battles so that a more solid front can be presented.

In closing, Dr. Blasingame quoted Dr. A. L. Abel, a London surgeon, whose recent article in *The American Journal of Surgery** discussing socialized medicine in England ended with these words: "One of Abraham Lincoln's most famous speeches began with the words: 'A house divided against itself cannot stand.' I believe that he would have continued: 'This profession cannot endure half slave and half free.' I think if Abraham Lincoln had been here today he might have used words something like these: 'It is for us to be here dedicated to the great task before us—that we here highly resolve that this profession under God shall have a new birth of freedom and that freedom of medical care and treatment of the people, by the people, for the people, shall not perish from the earth.'"

The various reports which were presented reflected the tremendous amount of work which has been done by the committees, councils, and boards since the last Executive Council meeting in September, 1949. Outstanding among these were the report on the progress of plans for the office and library building by Dr. T. C. Terrell, Fort Worth, chairman of the Board of Trustees, and the report on progress in obtaining up-to-date constitutions and by-laws for all of the county medical societies of the state and the issuance or reissuance of charters by Dr. W. E. Whigham, McAllen, chairman of the Board of Councilors. It was pointed out that a large number of county societies still have not revised their constitution and by-laws since a number of significant changes have been made in the Constitution and By-Laws of the State Medical Association, and that the county society officers and the councilors of the various districts should be more diligent in accomplishing this objective.

In reporting on the progress of plans for the annual session in Fort Worth May 2, 3 and 4, Dr. May Owen, Fort Worth, chairman of the Council on Scientific Work, detailed some of the changes which are being made in various meetings of the session, most of which have been mentioned in previous issues of the JOURNAL. The entire program for the annual session will appear in the March issue of the JOURNAL.

Dr. Everett Fox, Dallas, reported that the Council on Medical Economics had been making a detailed survey of medical care of indigents in Texas and that although this survey is practically completed, analysis of the findings has not yet been finished. He said the results of this study will

*EDITOR'S NOTE: *A story on this presentation appears in this section of the* JOURNAL.

**Abel, A. L.: Present Status of Socialized Medicine in England, Am. J. Surg. 79:23-31 (Jan.) 1950.*

be presented in the annual report of the council to the House of Delegates in Fort Worth. The council had the wholehearted support and assistance of the Texas State Department of Health in making this survey and although reports have not been received from fifty-nine counties, the survey should give a good cross section of the problem of providing medical care for the indigent of Texas, Dr. Fox said.

A report of the Committee on Nursing Care by Dr. A. C. Scott, Temple, chairman, indicated that the committee had prepared a bill which provides for the training and licensing as practical bedside or vocational nurses of women more than 18 years of age who have had as much as two years of high school training. He stated that representatives of nursing and hospital associations and other groups concerned with the problem were to meet with the Committee on Nursing Care of the Association in Temple on January 21 and 22 to go over this proposed bill and to try to come to some agreement in the wording of the bill so that it can be presented to the Legislature with a solid front by those advocating a solution to the problem. He pointed out that there is some disagreement among the various interested organizations as to the name that should be used to designate this nursing group, the minimum period of training, the minimum size of hospitals that should give this training, and the agency which should do the licensing.*

Dr. J. B. Copeland, San Antonio, is reporting on the activities of the Council on Legislation, of which he is chairman, said that the council had approved for introduction at the next regular session of the Texas Legislature the bill as prepared by the Committee on Nursing Care and recommended that it be supported by the Association. He also stated that the council had attempted to coordinate its efforts with those of other committees and councils of the Association for the purpose of keeping each member informed as to matters dealing with health legislation before the federal Congress.

The Report of the Committee on Public Relations, presented by Dr. George A. Schenewerk, Dallas, chairman, assisted by three other members of the committee, pointed out the tremendous amount of work which has been done by this committee. One matter of special importance was the proposal for establishment of a grievance committee† by the Association to hear complaints of physicians and laymen alike against physician members, to adjudicate these grievances as far as possible, and to refer the cases to the proper disciplinary body if necessary. A proposed "Code of Cooperation Between the Medical Profession and the Press and Radio"† was referred after discussion to the Board of Councilors for recommendation. The report concerning the grievance committee was accepted and the Committee on Public Relations was asked to proceed with details for formation of such a committee. This plan is to be presented to the House of Delegates at the Fort Worth annual session after approval by the Board of Trustees. A report was also made on the progress of formation of the Texas Health Council, which has no direct connection with the State Medical Association, but in which many Association members are interested. It was stated that a charter has been procured from the Secretary of State and that a permanent organization meeting is to be held in Dallas with the tentative date set at March 8.

A report of the Committee on Mental Health was presented by Dr. Abe Hauser, Houston, in the absence of the chairman. The committee expressed its concern over the state laws for commitment of the mentally ill and over the condition of state mental and tubercular hospitals and special schools.

During the meeting Dr. C. C. Cody, Jr., Houston, a past president of the Association, was given the privilege of the floor and invited the Board of Trustees to accept the invitation of the Harris County Medical Society and of the Texas Medical Center to combine the Library of the State Medical Association of Texas with the Texas Medical Center Library and to contribute approximately $15,000 a year to assist in the maintenance. This matter was referred to the Board of Trustees.

Several resolutions other than those in connection with reports of committees were presented and approved by the Executive Council for presentation to the House of Delegates. One of these, introduced by Dr. L. C. Powell, Beaumont, urged county medical societies to make the A.M.A. dues of $25 per year a part of the regular dues of each society. One presented by Dr. J. B. Copeland, San Antonio, requested that the University of Texas Board of Regents make or cause to be made an investigation of the teaching facilities, physical plant, and clinical facilities of all colleges and universities, including osteopathic schools, asking that their courses be accepted for credit by the University of Texas. In addition, Dr. L. H. Reeves, Fort Worth, presented two resolutions that letters of condolence be sent to the families of the late Drs. H. Leslie Moore and S. W. Weaver, both of Dallas, commending them for their outstanding contribution to both scientific and organized medicine, and also a letter of greeting to Dr. J. B. McKnight of Sanatorium, a trustee, wishing for him speedy recovery from his present illness.

*EDITOR'S NOTE: *The meeting in Temple has been held and the proposed bill was unanimously approved with minor modifications.*

†EDITOR'S NOTE: *More detailed discussion of these two matters will appear in later issues of the* JOURNAL.

DR. J. R. McGEE PRESENTED GENERAL PRACTITIONER'S AWARD

The first General Practitioner's Award of the State Medical Association of Texas was presented to Dr. Joel R. McGee, New Boston, on January 22 during the meeting of the Executive Council in Austin. The award, authorized by the House of Delegates at the annual session in San Antonio in May, 1949, was a shield-shaped bronze plaque mounted on hard wood, bearing the seal of the Association and inscribed: "Presented to J. R. McGee, M. D., General Practitioner of the Year 1949 by State Medical Association of Texas."

The plaque and a bound book containing biographical information, letters of commendation, resolutions of appreciation from the Senate and House of Representatives of the Fifty-First Texas Legislature, and other material bearing on the award were presented to Dr. McGee on behalf of the Association by Dr. G. V. Brindley, Temple, President. Governor Allan Shivers participated in the ceremony and added his congratulations to and good wishes for Dr. McGee.

Dr. McGee was born in Roston, Texas, in 1870. He received his preliminary education in the public schools of New Boston and at Sam Houston State Normal College, Huntsville, from which he was graduated in 1894. He had entered the teaching profession in 1890, and in 1894 he was appointed to serve on the state board to examine teachers, a position which he held for four years. In 1900, when he was superintendent of the New Boston Public Schools, Dr. McGee turned from the teaching profession to attend the University of Tennessee Medical Department, Nashville, from which he received the doctor of medicine degree in 1903. Because of his outstanding record, he was appointed assistant prosector during the second year of his medical training and prosector during his last year. After his graduation with honors, Dr. McGee returned to New Boston to practice. After taking a postgraduate course in eye, ear, nose, and throat at Chicago Medical College in 1912, he resumed

general practice with eye, ear, nose, and throat as a hobby. He has served as city health officer for thirty-five years and as county health officer since 1943. In 1945 he built the McGee Hospital, which he and his son, Dr. E. B. McGee, operate.

Almost continuously since 1904, Dr. McGee has been a member of the State Medical Association and American Medical Association through Bowie County Medical Society. He was president of the New Boston Independent School

DR. J. R. MCGEE

District for eight years, served as mayor of New Boston for fourteen years, and has been chairman of the board of stewards of the First Methodist Church continuously for thirty-five years.

In 1895 Dr. McGee married Miss Carrie Ellis. They have two sons and two daughters.

RELATED ORGANIZATIONS TO MEET AT ANNUAL SESSION

On Sunday and Monday, April 30 and May 1, ten organizations related to the State Medical Association will have meetings in Fort Worth, thus ushering in the 1950 annual session of the Association, opening exercises of which will be held Tuesday morning, May 2. Meetings of the House of Delegates Sunday afternoon and evening and perhaps Monday evening will also precede the formal beginning of the annual session. Another pre-session program sponsored by the State Medical Association will be a public meeting Sunday night at which Mr. Cecil Palmer, London, England, publisher, author, and lecturer, will speak on the British health plan.

Although the programs of the specialty societies are primarily for the members of those groups, portions of most of them are open to interested physicians. Complete programs will be published in the March issue of the JOURNAL. The groups which will be represented include the Texas Air-Medics Association, Texas Chapter of the American College of Chest Physicians, Texas Dermatological Society, Texas Diabetes Association, Texas Heart Association, Texas Orthopedic Association, Texas Railway and Traumatic Surgical Association, Texas Society of Anesthesiologists, Texas Society of Gastroenterologists and Proctologists, and Conference of City and County Health Officers.

Those concerned with the affairs of the House of Delegates of the State Medical Association should be in Fort Worth in time for the opening session of that body at 2 p. m., Sunday, April 30, Dr. G. V. Brindley, Temple, President of the Association, has pointed out. It is anticipated that some committees and councils will hold meetings that morning and the previous evening.

Mr. Palmer, leader in the British Society for Individual Freedom, is making a tour of the United States to describe Great Britain's national health act and its meaning for this country. Physicians and their wives who will be in Fort Worth for the annual session are being encouraged by officials of the Association to be present for Mr. Palmer's public appearance at 8 p. m. Sunday night, April 30, in the Will Rogers Auditorium and are being urged to invite their friends in and near Fort Worth to hear Mr. Palmer. In addition to the public lecture, Mr. Palmer will deliver an address at the general meeting of the Association on Tuesday morning, May 2.

Members of the Association who have not yet made hotel reservations for the period of the annual session should apply promptly to the Hotels Committee, 500 First National Bank Building, Fort Worth, Dr. W. F. Parsons, chairman of the committee, declares. Although he believes everyone planning to attend the session can be accommodated, advance arrangements must be made to assure satisfactory accommodations.

REPORTS OF OFFICERS AND COMMITTEES DUE

Annual reports of officers, councils, and committees of the State Medical Association are due in the office of the Secretary by March 1 to conform to the By-Laws of the Association. Those responsible for submitting reports who can supply them earlier than that date are encouraged by the Secretary to do so to facilitate preparation and publication of the reports for distribution to members of the House of Delegates ,by April 1.

COUNTY SOCIETIES

Angelina County Society

December 12, 1949

(Reported by W. D. Thames, Jr.. Secretary)

Officers for 1950 of Angelina County Medical Society elected at the December 12 meeting in Lufkin are as follows: C. W. Evans, Jr., president; Bernard Hyman, vice-president; W. D. Thames, Jr., secretary-treasurer; Jack H. Wade, censor; T. A. Taylor, delegate; and Joe S. Burch, alternate. All officers are from Lufkin.

Bee-Live Oak-McMullen Counties Society

December 5, 1949

(Reported by John W. Reagan, Secretary)

Eight members and their wives and two guests were present at the December 5 dinner meeting in Beeville of Bee-Live Oak-McMullen Counties Medical Society. Officers were elected as follows: D. W. Davis, Three Rivers, president; C. M. Poff, Tuleta, vice-president; John W. Reagan, Beeville, secretary-treasurer; D. W. Davis, Three Rivers, delegate; E. E. Miller, Beeville, alternate; and C. M. Poff, Tuleta; G. W. Sansom, George West, and Tom B. Reagan, Beeville, censors.

Bexar County Society

Officers who will serve Bexar County Medical Society in 1950 are as follows: W. H. Heck, president; C. E. Bosshardt, vice-president; J. J. Hinchey, secretary; W. S. Luedemann, treasurer; T. A. Pressly, A. F. Herff, and F. Milton Davis, censors; C. B. Alexander, W. W. Bondurant, Jr., J.

L. Matthews, A. W. Hartman, and J. L. Pipkin, delegates; and A. F. Clark, Sr., K. N. Hunt, S. F. Moore, Jr., K. A. Milburn, and A. H. Saegert, alternates.

Brazoria County Society

December 1, 1949

(Reported by W. D. Nicholson, Secretary)

Brazoria County Medical Society met in Angleton on December 1. Ralph Gray, Lake Jackson, moved that the society adopt the constitution and by-laws submitted by the State Medical Association and recommended by the Board of Councilors. The motion was seconded by J. A. Stewart, Freeport, and carried unanimously.

W. C. Holt, Angleton, moved that the secretary obtain a copy of the Code of Ethics of the American Medical Association issued recently to be read at a future meeting. J. M. Laughlin, Sweeny, agreed to make the report as soon as the code could be obtained.

The society voted to amend the constitution to combine the positions of secretary and treasurer, the secretary to serve in both capacities. Officers nominated from the floor and elected for the next year were as follows: R. M. McCary, Freeport, president; R. C. Miller, Lake Jackson, vice-president; W. T. Galloway, Freeport, secretary; J. S. Montgomery, Jr., Angleton, treasurer; Ralph E. Gray, Lake Jackson, delegate; and C. E. Fuste, Jr., Alvin, alternate. William M. Greenwood, West Columbia; Herbert E. Merz, Alvin; and A. O. McCary, Freeport, will serve as censors.

C. E. Fuste, Alvin, was appointed public relations chairman. Upon motion by William C. Holt, Angleton, a resolution of thanks to the officers of the society for their services of the past year was adopted. Mrs. W. D. Nicholson, Freeport, invited the members to a dance being given December 16 in Freeport by the auxiliary in observation of Doctor's Day.

Brazos-Robertson Counties Society

December 20, 1949

(Reported by C. M. Cole, Secretary)

Officers for Brazos-Robertson Counties Medical Society were elected at the December 20 meeting in Bryan. They are as follows: A. G. McGill, Jr., Bryan, president; James P. Fleming, Jr., Hearne, vice-president; R. B. Grant, Jr., Bryan, secretary; E. E. Holt, College Station, delegate; and W. C. Taylor, Jr., Calvert, alternate.

Coleman County Society

December 20, 1949

(Reported by Morris D. Mann, Secretary)

The following were elected officers of the Coleman County Medical Society at its meeting December 20: J. C. Young, president; S. N. Aston, vice-president; M. D. Mann, secretary-treasurer; C. O. Moody, delegate; M. D. Mann, alternate; and J. C. Young, C. G. Yarbrough, and M. D. Mann, censors. All officers are from Coleman.

Dallam-Hartley-Sherman-Moore Counties Society

December 1, 1949

At a dinner meeting on December 1 in Dumas the Dallam-Hartley-Sherman-Moore Counties Medical Society elected the following to office: Norman Wright, president; R. C. West, vice-president; and D. W. Meredith, secretary-treasurer. All officers are from Dumas.

A representative of the Shamrock Oil and Gas Company explained the company's mode of having physical examinations and injuries taken care of within the organization. The members were shown through the new $150,000 wing of the Moore County Memorial Hospital, where the meeting was held.

Eastland-Callahan Counties Society

December 13, 1949

(Reported by W. P. Watkins, Secretary)

Lesions of the Breasts—W. Burgess Sealy, Fort Worth.
Common Fractures—Lewis Levy, Fort Worth.

The program outlined above was given at the December 13 meeting in Eastland of Eastland-Callahan Counties Medical Society, which was also attended by auxiliary members. Officers were elected as follows: Robert W. Evans, Clyde, president; Charles T. Cole, Gorman, vice-president; W. P. Watkins, Ranger, secretary-treasurer; W. K. Cowan, Eastland, delegate; and D. Ball, Cisco, censor.

Galveston County Society

December 12, 1949

(Reported by Edward J. Lefeber, Secretary)

Galveston County Medical Society held its annual meeting in Galveston on December 12 and elected officers as follows: Herman Weinert, Jr., president; Hamilton Ford, president-elect; Weldon Kolb, vice-president; Edward J. Lefeber, secretary-treasurer; John Otto and Truman G. Blocker, Jr., delegates; and William Levin and Sam Snodgrass, alternates. Dr. Kolb is from Lamarque and the other officers are from Galveston.

Gray-Wheeler-Hansford-Hemphill-Lipscomb-Roberts-Ochiltree-Hutchinson-Carson Counties Society

December 20, 1949

(Reported by H. L. Wilder, Secretary)

Cardiac Arrhythmias—H. H. Latson, Amarillo.
Discussion—M. H. Wyatt, Pampa.

At its December 20 dinner meeting in Borger the Gray-Wheeler-Hansford-Hemphill-Lipscomb-Roberts-Ochiltree-Hutchinson-Carson Counties Medical Society elected the following to office: W. Purviance, Pampa, president; W. W. Brooks, Philips, first vice-president; E. S. Williams, Pampa, second vice-president; D. P. Bonner, Pampa, third vice-president; H. E. Nicholson, Wheeler, fourth vice-president; H. L. Wilder, Pampa, secretary-treasurer; P. C. Christian, Pampa, censor; R. W. Bagwell, Borger, delegate; and M. McDaniel, Pampa, alternate.

Dr. Latson spoke on the subject listed above, stressing in particular paroxysmal tachycardia, auricular flutter, and auricular fibrillation. The society voted to amend its constitution to conform with the Constitution of the State Medical Association. Also, a unanimous vote was passed to send flowers to J. H. Kelley, Pampa, who has been ill, and to the funeral of Dr. W. B. Wild, Pasadena.

The society decided to extend a vote of thanks to the Texas Manufacturers Association for its stand against socialized medicine and any system of bureaucratic control; the secretary was instructed to write a letter of commendation to the association.

In his annual report, the secretary-treasurer said that the attendance had been only 43 per cent. Dues for 1950 will be $60, instead of $100 as last year, and will include $35 state dues. The society's constitution and by-laws are to be amended so that dues will be set for the fiscal year at each annual meeting in December.

Grayson County Society

December 13, 1949

(Reported by Robert W. Duncan, Secretary)

New officers of Grayson County Medical Society, elected December 13, include W. Doak Blassingame, Denison, president; C. J. Donaghey, Sherman, vice-president; George S. Rowlett, Sherman, secretary-treasurer; James E. McFarling, Denison, and James V. M. Lay, Sherman, censors; E. L.

Hailey, Denison, delegate; and Arthur Gleckler, Sherman, alternate.

Guadalupe County Society

December 29, 1949

(Reported by Raymond T. Moore, Secretary)

Guadalupe County Medical Society met December 29 and elected officers for 1950 as follows: R. L. Knolle, Jr., president; Allen I. Heinen, vice-president; Raymond T. Moore, secretary-treasurer; Joseph T. Goetz, censor; Hugh Davis, delegate; and J. C. B. Douthett, Seguin, alternate. All officers are from Seguin.

Hardin-Tyler Counties Society

December 13, 1949

(Reported by Eugenia T. Gauntt, President)

Elected to office for 1950 at the December 13 meeting of Hardin-Tyler Counties Medical Society were the following: Eugenia T. Gauntt, Kountze, president; Watt Barclay, Woodville, vice-president; George D. Tennison, Silsbee, secretary-treasurer; W. J. Poshataske, Silsbee, delegate; and L. R. Lancaster, Sour Lake, alternate.

Harris County Society

Officers who will serve Harris County Medical Society in 1950 are as follows: George W. Waldron, president; C. F. Jorns, president-elect; T. P. Kennerly, vice-president; Everett B. Lewis, secretary; V. C. Baird, treasurer; Byron P. York (chairman), Wade Hamrick, and W. H. Connor, censors; H. L. Alexander, John K. Glen, Mylie E. Durham, Sr., Edward T. Smith, E. R. Seale, C. C. Cody, Jr., Denton Kerr, Homer E. Prince, J. G. Heard, and Emile Zax, delegates; and David V. Wachsman, G. Q. Adams, Joe R. Gandy, John C. Kennedy, J. D. Mabry, J. E. Clarke, Edgar McPeak, Stephen Foote, Harry B. Burr, and J. S. Oliver, alternates.

Hays-Blanco Counties Society

(Reported by J. R. de Steiguer, Secretary)

At the recent annual meeting of Hays-Blanco Counties Medical Society the following were elected to office: John J. Flannery, Blanco, president; J. M. Van Ness, San Marcos, vice-president; Benge Elliott, San Marcos, secretary-treasurer; and C. W. Scheib, M. C. Williams, and R. F. Sowell, all of San Marcos, censors.

Hill County Society

December 6, 1949

Election of officers was held by Hill County Medical Society on December 6 in Hillsboro as follows: James Morgan Buie, Whitney, president; Dick Cason, Hillsboro, vice-president; Charles A. Garrett, Hillsboro, secretary-treasurer; and Robert Shirey, Hillsboro, delegate.

W. I. Arledge, Hillsboro, and L. Barnes, Hubbard, were given Merit of Honor certificates, which have been given to thirty-seven medical graduates of the University of Tennessee who have practiced for more than fifty years and still are active; Garland McPherson represented the university in making the awards.

Dr. Buie presented three medical motion pictures.

Jefferson County Society

January 9, 1950

(Reported by Mr. E. Mittendorf, Executive Secretary)

Management of Epileptic Child—C. Harrison Snyder, New Orleans.

Jefferson County Medical Society met in Port Arthur on January 9 with sixty members attending. Thomas B. Matlock, president, presided.

Dr. Matlock announced the appointment of committees for 1950. The report of the audit of records for 1949 was read, indicating that membership had increased by fourteen during the year, that the financial condition of the society was good, and that proper accounting had been made. The announcement of the American Medical Association annual dues of $25 effective January 1, 1950, was made.

J. J. Esslinger, past secretary-treasurer, reported on the recent examination of the society's records by agents of the Federal Bureau of Investigation. The society cooperated in the investigation but the results were unknown.

Several amendments to the constitution and by-laws were read for the first time and will be acted upon at the next meeting.

A guest from New Orleans, C. Harrison Snyder, gave the paper mentioned above.

Kimble-Mason-Menard-McCulloch Counties Society

Kimble-Mason-Menard-McCulloch Counties Medical Society recently elected officers for 1950 as follows: B. A. Hallum, Jr., Brady, president; Aaron R. Hays, Brady, vice-president; H. W. Martin, Menard, secretary-treasurer; J. P. Anderson, Brady, delegate; P. A. Baze, Mason, alternate; and B. A. Hallum, Jr., W. F. Benson, and G. H. Ricks, censors.

Lamar County Society

December 1, 1949

Elected to office at the December 1 meeting in Paris of Lamar County Medical Society were the following: Scott Hammond, president; Clarence E. Gilmore, vice-president; and Thomas E. Hunt, Jr., secretary-treasurer. All are of Paris.

Lavaca County Society

December 28, 1949

(Reported by James W. Boyle, Secretary)

Lavaca County Medical Society on December 28 elected officers for the new year as follows: Robert W. Williams, president; Hugo J. Strieder, vice-president; James W. Boyle, Jr., secretary-treasurer and delegate; and Robert W. Williams, alternate. Dr. Strieder is from Moulton; the other officers, from Shiner.

Lubbock-Crosby Counties Society

January 3, 1950

(Reported by Frank W. Hudgins, Secretary)

Carcinoma of Right Half of Large Bowel—Ewell L. Hunt and Richard C. Douglas, Lubbock.
Discussion—Sam C. Arnett, Robert H. McCarty, and Olan Key, Lubbock.

Thirty-eight members and guests were present at the January 3 meeting in Lubbock of Lubbock-Crosby Counties Medical Society. Roy G. Loveless, president, presided.

John R. Chalk and Leon Ruben Upshaw were accepted as members. Ewell L. Hunt moved and Allen T. Stewart seconded that the financial report for 1949 be accepted as read. Committees for 1950 were appointed. Volunteers to serve for January in the blood bank were requested and the chairman of the blood bank committee was asked to secure a list of volunteers who had served in 1949.

The paper mentioned above was presented by Drs. Hunt and Douglas. Dr. Douglas discussed the symptoms, which he correlated with the physiology of the bowel, and the differential diagnosis and incidence of carcinoma in various parts of the large intestine. Dr. Hunt presented 2 cases and discussed treatment and surgery of carcinoma of the ascending colon.

Medina-Uvalde-Maverick-Val Verde-Edwards-Real-Kinney-Terrell-Zavala Counties Society

December 9, 1949

Lower Urinary Obstructions—William Sawtelle, San Antonio.
Foreign Bodies of Cornea—Jack Lee, San Antonio.
Practical Application of Clinical Electrocardiography—Troy Shafer, Harlingen.

A dinner meeting of Medina-Uvalde-Maverick-Val Verde-Edwards-Real-Kinney-Terrell-Zavala Counties Medical Society was held in Crystal City on December 9. The program outlined above was given.

Montgomery County Society

(Reported by William O. Bellnoski, Jr., Secretary)

Montgomery County Medical Society met recently and decided to adopt the model constitution suggested by the State Medical Association and to request a charter. Officers were elected as follows: EE Lenon, president; E. W. Anderson, vice-president; William O. Bellnoski, Jr., secretary-treasurer; and W. P. Ingrum, honorary secretary. Dr. Bellnoski is from Willis; the other officers, from Conroe.

Nacogdoches County Society

December 14, 1949

(Reported by James G. Taylor, Jr., Secretary)

Nacogdoches County Medical Society reelected the following members to office at its meeting in Nacogdoches on December 14: Henry Tucker, president; Edgar P. McKinney, vice-president; and James G. Taylor, Jr., secretary-treasurer, all of Nacogdoches.

Nolan-Fisher-Mitchell Counties Society

(Reported by S. F. Supowit, Secretary)

Officers recently elected for Nolan-Fisher-Mitchell Counties Medical Society are as follows: S. F. Supowit, president; J. K. Richardson, vice-president; Phillip W. Taylor, secretary-treasurer; Robert L. Price, delegate; T. D. Young, alternate; and R. O. Peters, S. A. Loeb, and Lawrence Rudd, censors. Dr. Young is from Roscoe; Dr. Rudd, from Colorado City; and the other officers, from Sweetwater.

Nueces County Society

(Reported by F. W. Yeager, Secretary)

Officers who will serve Nueces County Medical Society in 1950 are as follows: E. J. Giles, president; June Yates, vice-president; F. W. Yeager, secretary; J. L. Barnard, treasurer; J. F. Pilcher and Tom Edwards, censors; G. T. Moller and C. P. Yeager, delegates; L. M. Garrett and J. F. Pilcher, alternates; and Jerome Nast, president-elect. All officers live in Corpus Christi.

Palo Pinto-Parker Counties Society

December 13, 1949

(Reported by R. C. Jordan, Secretary)

Anterior Portion of Urethra—Grant F. Bagley, Fort Worth.
Hysterectomies—J. M. Lawson, Fort Worth.

The Palo Pinto-Parker Counties Medical Society met in Mineral Wells on December 13, with Ben L. McCloud, Jr., president, presiding. Six members attended.

A resolution of the Texas Manufacturers Association opposing compulsory health insurance was read and approved. An invitation to attend an appreciation supper for W. S. Pedigo, Strawn, was read.

Election of officers was held as follows: R. C. Jordan, Mineral Wells, president; John B. Merrick, Weatherford, vice-president; James D. McCall, Mineral Wells, secretary-treasurer; John L. Roan, Lipan; Ben L. McCloud, Jr., Mineral Wells; and R. C. Jordan, Mineral Wells, censors; E. F. Yeager, Mineral Wells, delegate; and Platt L. Allen, Weatherford, alternate.

The program outlined above was given.

Panola County Society

(Reported by J. M. Ashby, Secretary)

The following were elected to office for 1950 in Panola County Medical Society: Charles D. Baker, president; D. B. Daniel, vice-president; H. D. Kuykendall, Sr., secretary-treasurer and delegate; and W. C. Smith, alternate. All officers are from Carthage.

Pecos-Jeff Davis-Presidio-Brewster Counties Society

January 11, 1950

(Reported by W. E. Lockhart, Secretary)

Surgical Errors and Safeguards and Management of Gallbladder Diseases (slides)—J. W. Nixon, San Antonio.

The regular meeting of Pecos-Jeff Davis-Presidio-Brewster Counties Medical Society was held January 10 in Alpine. Eight members and one guest were present. The society voted to accept the bank balance of $124.06 as of January 1 as correct. A letter from Harold Williams, Secretary of the State Medical Association, regarding registration of medical laboratories and the society's recommendation of Jim Camp, Pecos, as General Practitioner for 1950 was read.

The program outlined above, arranged by B. A. McReynolds, Stanton, was presented.

Randall-Deaf Smith-Parmer-Castro-Oldham Counties Society

December 7, 1949

(Reported by Leta N. Boswell, Secretary)

At the December 7 meeting in Hereford of Randall-Deaf Smith-Parmer-Castro-Oldham Counties Medical Society, the following were elected by acclamation: R. P. Jarrett, Canyon, president, and R. A. Neblett, also of Canyon, secretary-treasurer. The meeting was held after a dinner at which society and auxiliary members were present. During the dinner O. H. Loyd, Vega, recounted some of the highlights of his life, especially some of his experiences in the Texas Panhandle.

Fourteen members and five guests were present.

Smith County Society

December 8, 1949

(Reported by Milton Freiberg, Secretary)

Officers were elected at the annual meeting of Smith County Medical Society in Tyler on December 8. Those chosen include the following: J. Weldon Birdwell, president; George B. Allen, vice-president; Milton Freiberg, secretary-treasurer; Thomas M. Jarmon, delegate; Lex Neill, alternate; and Carter Anderson, Jesse Goldfeder, and John H. Mitchell, censors. All of the officers reside in Tyler.

Tarrant County Society

December 6, 1949

(Reported by W. P. Higgins, Jr., Secretary)

Sixty-seven members were present at the December 6 meeting of Tarrant County Medical Society. Reports were given by the secretary-treasurer and by the various committee chairmen.

The following officers were elected: J. F. McVeigh, president-elect; Ernest E. Anthony, Jr., vice-president; W. P. Higgins, Jr., secretary-treasurer; DeWitt Claunch, censor; C. P. Hawkins, trustee; C. O. Terrell and Hobart O. Deaton, alternates; and William M. Crawford, Mal Rumph, and Theron H. Funk, alternates. Bert C. Ball is president for the coming year.

The society voted to recommend J. B. Cummins as its candidate for General Practitioner of the Year and L. H. Reeves as candidate for emeritus membership in the State Medical Association. Ross Whittenberg was accepted as a member by transfer from Hidalgo-Starr Counties Medical Society.

Frank S. Schoonover, Jr., moved and L. H. Reeves seconded that a committee be appointed to invite congressional representatives and senators of the district to speak at the next meeting regarding their stand on socialized medicine.

The motion carried. W. B. West urged members to join the American Association of Physicians and Surgeons in its fight against socialized medicine.

William A. Knapp called the attention of the society to the clause in poliomyelitis insurance which provides that a child who is paralyzed and who cannot be properly fitted with braces or operated upon within five years after the disease begins receives no protection from the policy.

December 20, 1949

(Reported by W. P. Higgins, Jr., Secretary)

Medical and Surgical Reimbursement Insurance—Mr. Robert W. Maxwell.
Discussion—Tom B. Bond, Sim Hulsey, T. C. Terrell, R. G. Baker, and H. O. Deaton, Fort Worth.
Intravascular Clotting of Blood—Jack Kay, New Orleans.
Discussion—Harold J. Shelley, W. S. Lorimer, Jr., J. B. Fershtand, John J. Andujar, F. J. Daugherty, and J. W. Short, Fort Worth.

Eighty-four members and seven visitors attended the December 20 meeting of Tarrant County Medical Society in Fort Worth. Mr. Maxwell, the assistant general agent of the Aetna Insurance Company, and Dr. Kay of the Oschner Clinic, gave the program outlined above.

Elected to membership were Frank J. Blaha, C. H. Boyd, Ben P. Estes, and George A. Stewart, Jr.

January 3, 1950

(Reported by W. P. Higgins, Jr., Secretary)

Differential Diagnosis of Jaundice (lantern slides)—Richard D. Haines, Temple.
Discussion—Robert H. Mitchell, T. H. Thomason, W. Burgess Sealy, and H. O. Deaton, Fort Worth.
Revised Code of Ethics of American Medical Association—Ernest E. Anthony, Jr., Fort Worth.

Tarrant County Medical Society met in Fort Worth on January 3 with seventy-nine members and three visitors present. The program outlined above was given. A motion made by Hub E. Isaacks and seconded by George W. Lacy that a committee be appointed to formulate policies in regard to consultation with practitioners other than doctors of medicine was carried. Joanne Kenner, C. R. Hall, and James T. Lawrence were elected to membership upon application.

Travis County Society

January 17, 1950

(Reported by M. Allen Forbes, Jr., Secretary)

Nontuberculous Pathology from Mass Survey of Austin Area (slides)—H. E. Smith, Austin.
Use and Interpretation of Tuberculin Skin Tests—R. B. Morrison, Austin.

At the January 17 meeting in Austin of Travis County Medical Society, the program outlined above was given.

AUXILIARY SECTION

AUXILIARY NEWS

Bexar County Auxiliary

The Woman's Auxiliary to Bexar County Medical Society entertained the wives of visiting physicians at the International Post-Graduate Medical Assembly of Southwest Texas with a cocktail party and buffet supper in San Antonio on January 25.—Mrs. Lewis M. Helfer, Publicity Chairman.

Dallas County Auxiliary

The executive board of the Dallas County Auxiliary met at the home of Mrs. Ridings E. Lee in Dallas on January 4, with Mesdames George Schenewerk, C. O. Patterson, Speight Jenkins, W. Maxwell Thomas, and Elliott Mendenhall as hostesses.

Mrs. Travis Wallace, president of the Dallas Health Museum, spoke at the auxiliary's meeting later the same day. Her topic was "How Can We Sell Health?"—Mrs. M. P. Knight.

El Paso County Auxiliary

El Paso County Auxiliary had a luncheon meeting January 9 in El Paso with Mrs. Joseph B. Foster, Houston, President of the Woman's Auxiliary to the State Medical Association, as special guest. Mrs. Foster stressed the theme of the year, "Individual Responsibility," in her talk to the group.

The hospital committee, of which Mrs. Frank C. Golding is chairman, has been active visiting the children's wards of the various El Paso hospitals. The women read to the children, show them movies, and donate coloring books and crayons to them. Money from a white elephant sale conducted by the auxiliary has been used by the committee in its program.

The cancer committee, with Mrs. H. Hatfield as chairman, is conducting a surgical dressings instruction class and meets weekly to make dressings for the El Paso Tumor Clinic. All members of the auxiliary have been encouraged to donate old cloth suitable for the dressings.—Mrs. C. C. Boehler.

Jefferson County Auxiliary

A tea honoring Mrs. Joseph B. Foster, Houston, President of the Woman's Auxiliary to the State Medical Association, was given December 13 in the home of Mrs. John Hart, Beaumont, by Jefferson County Auxiliary. Mrs. H. B. Williford, Beaumont, was leader, and Mrs. Paul Petit, Beaumont, the hostess chairman, was assisted by Mesdames E. H. Lindsey, W. Pierre Robert, and S. B. Lyons, all of Beaumont.

Forty-two members of the local auxiliary and ten visitors were present. Christmas tree decorations were used throughout the house.—Mrs. R. T. Lombardo, Publicity Chairman.

Kerr-Kendall-Gillespie-Bandera Counties Auxiliary

The Woman's Auxiliary to the Kerr-Kendall-Gillespie-Bandera Counties Medical Society met in the home of Mrs. Judd Kirkham, Legion, on November 4. Assisting hostesses were Mesdames R. K. Horsman, G. W. Post, John Lecky, Paul Burnett, William Hentel, and G. D. Guilbert, all of Legion.

Mrs. E. L. Dyer, Kerrville, president, welcomed about ten out-of-town visitors, wives of the doctors attending the tuberculosis seminar at Hunt. Members decided to donate supplies to be used in embroidery, knitting, crocheting, and quilt making by women patients at the Kerrville State Sanatorium.

The program chairman introduced Dr. Choice Matthews, Kerrville, who talked on "Heart Disease, Number 1 Killer." A social hour was held after the meeting.

The Woman's Auxiliary to Kerr-Kendall-Gillespie-Bandera Counties Medical Society met in the home of Mrs. W. E. Gregg, Kerrville, on December 2, with Mesdames

Officers of the Woman's Auxiliary to the State Medical Association of Texas: President, Mrs. Joseph B. Foster, Houston; President-Elect, Mrs. William M. Gambrell, Austin; First Vice-Presidents (Organization), Mrs. Paul Brindley, Galveston; Second Vice-President (Physical Examination), Mrs. Howard E. Puckett, Amarillo; Third Vice-President (Hygeia), Mrs. P. M. Kuykendall, Ranger; Fourth Vice-President (Program), Mrs. L. S. Thompson, Dallas; Corresponding Secretary, Mrs. Mark H. Latimer, Houston; Recording Secretary, Mrs. R. Ernest Clark, Memphis; Treasurer, Mrs. V. M. Longmire, Temple; Publicity Secretary, Mrs. R. T. Wilson, Austin; Parliamentarian, Mrs. Fred Sutton, Beaumont.

E. H. Green, J. B. DesRochers, A. P. Allison, and David McCullough serving as hostesses. Christmas music was featured during the program.

The Auxiliary met January 6 at the home of Mrs. Harry Tubbs, Fredericksburg, with Mrs. Victor Keidel and Mrs. J. H. Perry, both of Fredericksburg, assisting.

Mrs. A. P. Allison, Kerrville, public relations chairman, announced that the first of the radio quiz programs would be broadcast from station KEVT on January 10, continuing for eight weeks. Two teams of four children each and a moderator will participate. The auxiliary will furnish prizes for the winning team.

Mrs. Roger Stevenson was appointed chairman of a nurses recruiting program. Mrs. Choice Matthews, program chairman, introduced Mrs. William Franke, Kerrville school nurse, who spoke on "Child Adoption." A social hour was held after the meeting.—Mrs. W. Earl Gregg, Secretary.

Smith County Auxiliary

Smith County Auxiliary met in the home of Mrs. Albert Woldert in Tyler on December 7. Mrs. James M. Vaughn and Mrs. Robert L. Marshall were co-hostesses. Mrs. Glynne Brown, president, poured coffee and also presiding at the table were Mesdames C. C. McDonald, W. M. Bailey, and Thomas M. Jarmon. The house and table were decorated in the Christmas motif.

Mrs. R. E. G. Baldwin introduced the guest speaker, Dr. Henry Poetter, who spoke on the East Texas Tuberculosis Hospital. Mrs. Brown presided during the regular business meeting.—Mrs. C. E. Willingham.

DEATHS

V. B. COZBY

Dr. Vaneverie Bascom Cozby, Grand Saline, Texas, died November 29, 1949, in Grand Saline.

Dr. Cozby was born near Van on September 29, 1875, the son of C. C. and Sallie Cozby. He received his early education in the public schools of Colfax and Ben Wheeler and the Alexander Collegiate Institute, now Lon Morris College, Jacksonville. He taught school for several years before entering Southwestern University Medical College, Dallas, from which he was graduated in 1908. That year he began his long practice in Grand Saline, which ended with his retirement in 1947.

A member of the American Medical Association and the State Medical Association through Dallas and Van Zandt Counties Medical Societies, Dr. Cozby served as president of Van Zandt County Medical Society in 1930-1931. He was a volunteer in the Spanish American War, and during World War I he was a captain in the medical corps for 15 months, being stationed at Fort Worth and at Fort Riley, Kansas. He was retired from the National Guard with the rank of major. For twenty-eight years, Dr. Cozby served as mayor of Grand Saline, and during his administration the town's first waterworks and sewer system were installed. The Cozby-Germany Hospital, Grand Saline, was named in honor of Dr. Cozby. He served for eight years on the school board, was the first president of the Grand Saline Lions Club, for many years was on the board of stewards of the Methodist Episcopal Church, and was a member of the Masonic and Shrine Orders.

Dr. Cozby was married December 23, 1900, in Colfax to Miss Linnie Kirkpatrick, who survives, as do his two sons, Dr. Raymond W. Cozby, Grand Saline, and Dr. Harold O. Cozby, San Diego, Calif.; two daughters, Mrs. Owen Kuykendall, Grand Saline, and Mrs. Girvice W. Archer, Austin; and four grandchildren.

A. J. COX

Dr. Arthur J. Cox, formerly of Ennis, Texas, died in Arlington on December 15, 1949.

The son of Charles and Julia (Claycomb) Cox, Dr. Cox was born December 9, 1868, in Grandview, Ind. Receiving his early education in the public schools of Grandview and the Rome Academy of Indiana at Rome, he taught school for about a year in Kansas and moved to Texas, where he held a position with the state for a number of years. Dr. Cox was graduated from the Louisville Medical College, Louisville, Ky., in 1904; he then moved to Ennis, where he practiced medicine until his retirement in 1945. He was also licensed to practice in New Mexico and Arkansas. Dr. Cox did postgraduate work in New York, Chicago, and New Orleans.

Dr. Cox was a member of the State Medical Association and the American Medical Association through Ellis County Medical Society, and was elected to honorary membership in the State Medical Association in 1945. He was active in the Masonic Order, having been awarded a fifty-year-member emblem and a life membership in the Ennis Masonic Lodge in 1948, and was a resident in the Masonic Home at Arlington at the time of his death. He was a member of the Methodist Church.

DR. ARTHUR J. COX

On July 4, 1898, in Evansville, Ind., Dr. Cox married Mrs. Cornie Newman, who died in 1934. Dr. Cox is survived by two nieces, Mrs. Julia Rimstidt of Evansville, Ind.; and Mrs. Ida Klein, Cincinnati.

An obituary ordinarily will not be published more than four months after date of death. Cooperation in reporting deaths of physicians and in furnishing appropriate biographical material promptly is solicited.